LOGY DEPARTMENT

TEXTILE WORLD

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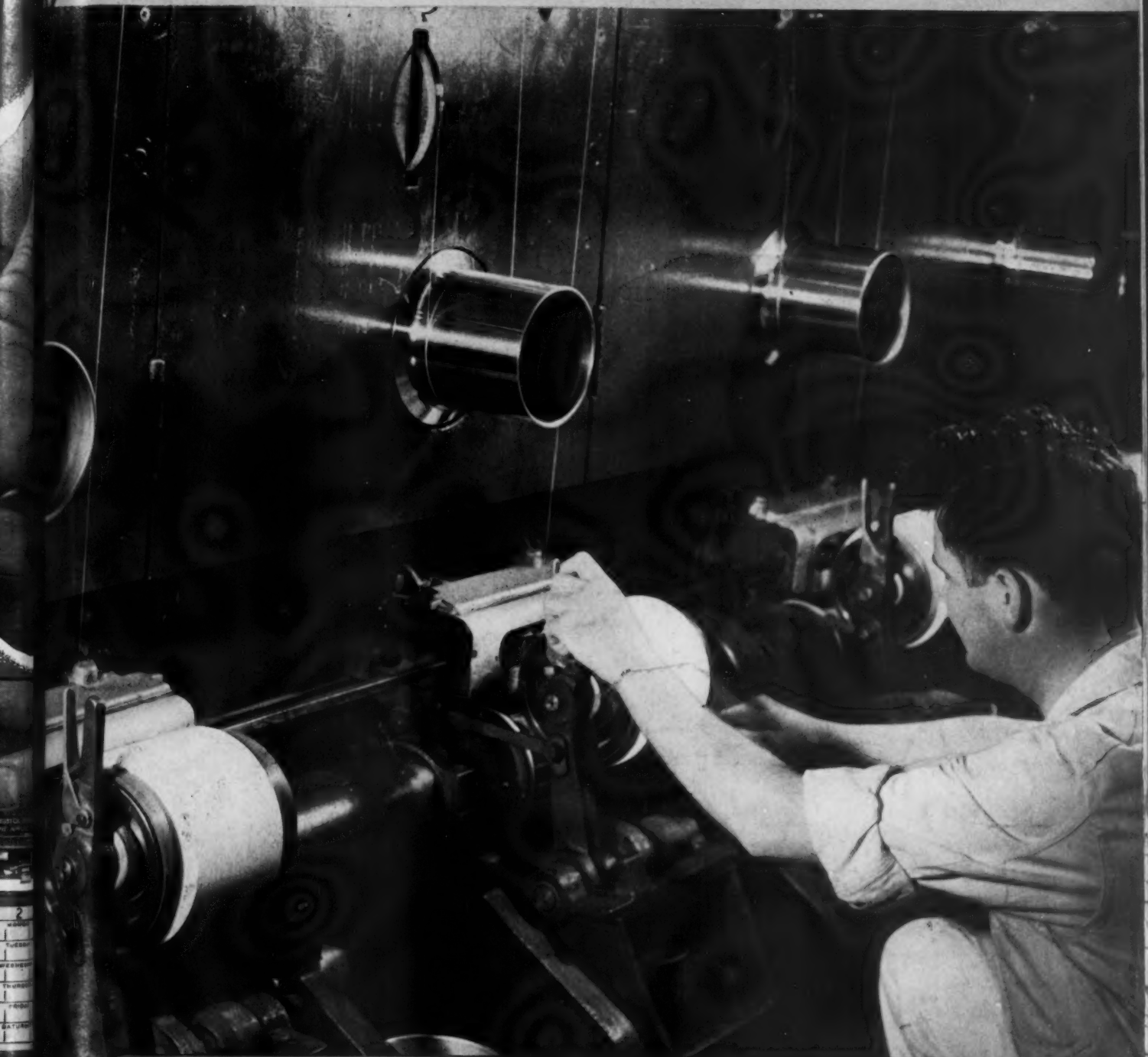

23RD Annual Synthetics Survey

Commercial FACTORING

More and more, the word "COMMERCIAL" is recognized as the "distinguishing mark" in factoring. It is the symbol of long experience, complete facilities and resources, and a knowledge of every branch of the textile industry.

We will gladly explain in detail what *COMMERCIAL FACTORING* can mean to your business in new opportunities and increased profits.

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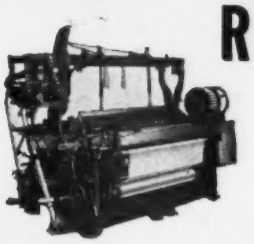
DETROIT

HIGH SPEED XD MODEL
RAYON LOOM



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TOP QUALITY
RAYON FABRICS

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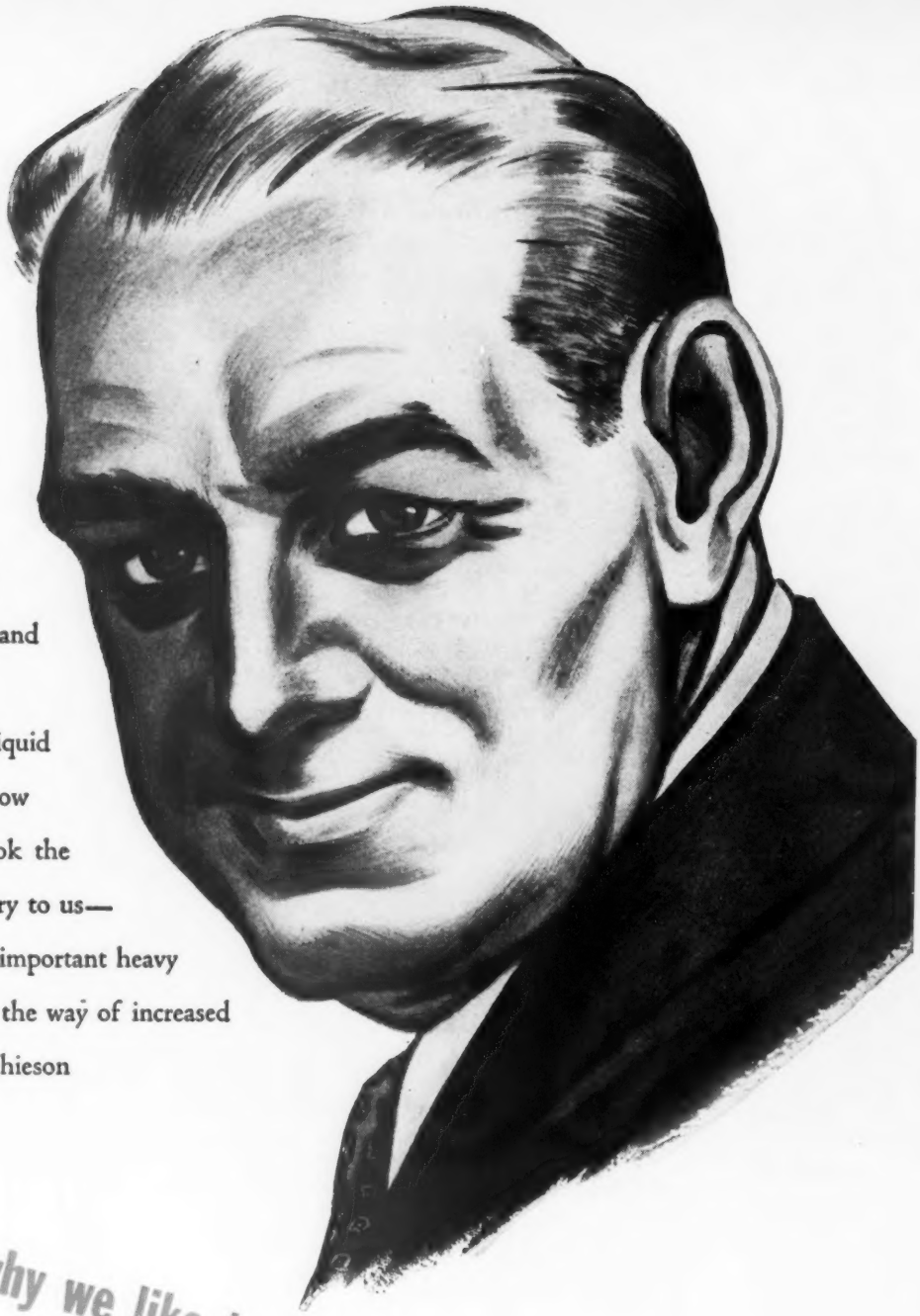

"In my business, we could use more caustic soda, soda ash and sodium bicarbonate than we're getting . . . and that goes for liquid chlorine, too. But at least we know where we stand. Mathieson took the trouble to explain the whole story to us—why there's a shortage of these important heavy chemicals . . . what to expect in the way of increased supplies in 1947 and 1948. Mathieson always works with us . . .

". . . and that's why we like to do business with Mathieson!" *

**The foregoing is based on reactions to our advertisement—"Why you can't buy all the Caustic Soda, Soda Ash, Sodium Bicarbonate and Chlorine you want"—which appeared in many publications earlier this year.*

The Mathieson Alkali Works (Inc.),
60 East 42nd Street, New York 17, N. Y.

Mathieson
CHEMICALS

Caustic Soda . . . Soda Ash . . . Sodium Bicarbonate . . . Liquid Chlorine . . . Chlorine Dioxide . . . Ammonia, Anhydrous & Aqua . . . HTH Products . . . Fused Alkali Products . . . Dry Ice . . . Carbonic Gas Sodium Chlorite Products . . . Sodium Methylate

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TEXTILE WORLD

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A McGRAW-HILL PUBLICATION

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THE *Long-Range* VIEW

CAN TEXTILES BE "TOO GOOD"?

Mills have received criticism for downgrading fabrics without advising customers. In one charge, the claim was made that a duck that previously tested 150 lb. in the warp and 70 lb. in the filling is now testing 120 and 63 lb., respectively. Most likely, in this case, the criticism was justified—but not necessarily so.

In one sense, of course, any reduction in quality is downgrading, that is, a drop from a previous level; but perhaps that level was above what should have been expected in the first place. In the past, buyers of fabrics ordinarily expected plus values in whatever they bought. If buyers needed a fabric with a certain construction or breaking strength, they shopped around until they found a supplier who would give them that and something more. By doing so they proved that they were good buyers.

Practically every purchaser of textiles came to expect premium values at regular prices, and got them.

Mills, to get a customer, would resort to all sorts of devices: extra ends or picks, generous allowances for defects, higher twists, greater breaking strengths, longer or finer fiber, fewer yarn knots, long cuts, special selvages, fancy or unusual packaging, little or no questioning of rejects. Mills took pride in supplying fabrics with 150 lb. of breaking strength against specifications of 120 lb., or yarns with 58 to 60 t.p.i. while competitors were twisting 54 to 56.

Unquestionably some of these practices entailed economic waste. For example, it could be shown that 50 to 52 t.p.i. in viscose-rayon yarn soaked properly could produce a crepe superior to that produced by yarn with 58 to 60 t.p.i.; but turns per inch can easily be tested and buyers would quickly exclaim, "Downgrading; knock off 2¢ a yard." The fact that the fabric could equal or surpass fabrics with 58 to 60 t.p.i. would be subject to individual taste and opinion, which are difficult to measure.

From all of the foregoing, it should be evident that there are two distinct aspects to be considered. One aspect has to do with industrial fabrics, and the other with garment or furnishings fabrics. With the former, more precise lines can usually be drawn. For many industrial uses, a precise weight, width, thickness, or strength is needed. Such factors can be measured. If a user feels he needs, for example, cloth testing 150 lb. in the warp, he can get it. But if he needs only 120 lb., why should he be discontented if he does not get 150?

Perhaps the user, as is often the case, does not know exactly what he needs. He merely knows what he has been using in the past or what his competitor is using. There are a surprising number of purchasers of textiles who have little or no precise information as to exactly what they should have in their fabrics.

Such ignorance, of course, is greater among buyers of garment and furnishings fabrics. It is hard for them to determine whether 88 or 84 picks are needed. Today, the trend would be to try the 84. Before long, the trend may be to the 88.

One thing mills have learned: Many frills, premiums, or extras are not needed for the particular uses made of fabrics. Another thing they should have learned: Such items are expensive. If it were not for cutting out many of them, plus better operating techniques, it would have been impossible for textile mills to offset as much as they have of higher labor and materials costs.

We should hope that we really have reached a new level of operation in which we know how to produce more precisely the textile needed for a particular use, in which we know better how to keep down costs without ever again resorting to low wages. This is the intelligent way to give the optimum value for the money involved. It is economically sound to offer a quality related to the expected service; it is unsound to apply a superior quality to an inferior use. In the sellers' market, mills have learned much that they undoubtedly will long remember. The textile industry can never again be what it was prewar.

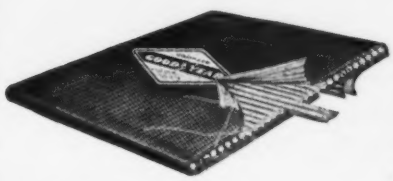
C. H. Bendigo

G.T.M.-Specified

GOODYEAR INDUSTRIAL RUBBER PRODUCTS

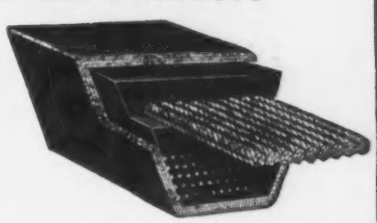
TRIO OF PENNY-PINCHERS

CUT COSTS WITH THESE MILL-PROVED GOODYEAR PRODUCTS



ENDLESS COMPASS BELTS for compressors, vertical openers and other heavy-duty drives. In countless installations they have outlived and outperformed ordinary belts three and four to one.

TEXAIR HOSE — most economical ever built for cleaning spindles and carding machines. Light, supple, unusually strong cover won't soften or weaken from contact with oil, but is tough and resists cutting and abrasion, insuring longer life.



E-C CORD MULTI-V BELTS are uniform in length, cross section, pull and service life. Their perfect teamwork insures lowest ultimate cost.

WHEN it comes to delivering top-notch performance at rock-bottom cost, nothing in rubber compares with the famed Goodyear trio shown here. Each has established records for long wear and economy in scores of textile mills. And each is specified in the correct construction after careful appraisal of your requirements by the G.T.M. — Goodyear Technical Man.

For a firsthand report on the savings these star performers can bring to your mill, why not consult the G.T.M.? A line will bring him to your plant. Write: Goodyear, Akron 16, Ohio or Los Angeles 54, California.

FOR HOSE, BELTING, MOLDED GOODS, PACKING, TANK LINING, built to the world's highest standard of quality, phone your nearest Goodyear Industrial Rubber Products Distributor.

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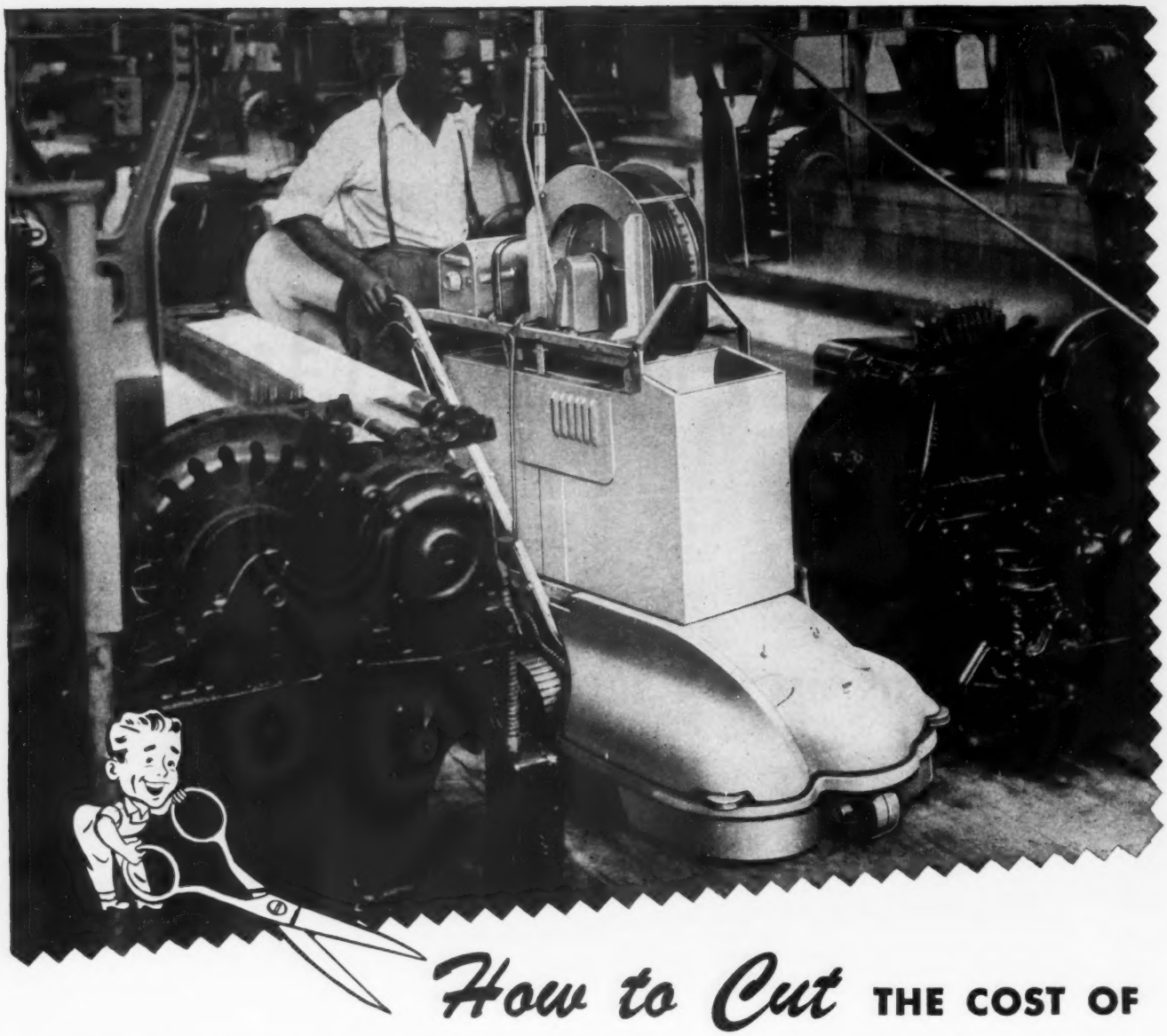
GOODYEAR

THE GREATEST NAME IN RUBBER



How to Cut THE COST OF CLEANING OILY WOOD FLOORS . . . *And Aid Production!*

In seeking ways and means of aiding cost-reduction, management will look to improved methods and equipment for the maintenance of floors.

Important savings are possible in cleaning large-area floors by using high-speed mechanical equipment that both scrubs and picks up in a single operation . . . and by using in such a machine a cleanser designed for the greater speed of mechanical scrubbing.

The *Finnell Scrubber-Vacuum* illustrated, and *Setol*, the mineral oil solvent specially compounded for machine-scrubbing, are an unbeatable team for fast, low-cost cleaning of oily wood floors. This *Self-Propelled Finnell* is a complete cleaning unit *all in one*. It applies the cleaning solution, scrubs, rinses if required, and picks up. Has a cleaning capacity of approximately 8,750 sq. ft. per hour!—a speed that *Setol* matches in *cleaning action*. *Setol* emulsifies grimy oil and grease *instantaneously*. This cuts operating time of the machine, which in turn reduces labor costs and saves on brushes. *Clean floors are safer floors* . . . bolster worker morale and thereby aid production!

For free floor survey, consultation, or literature, phone or write nearest *Finnell* branch or Finnell System, Inc., 1909 East St., Elkhart, Ind. Canadian Office: Ottawa, Ont.

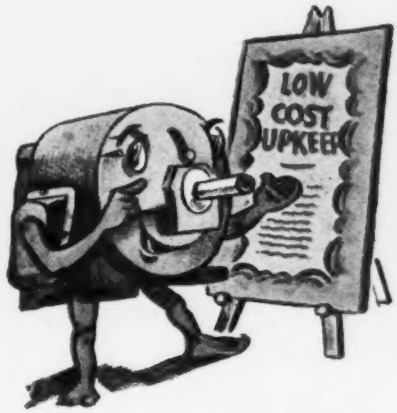
FINNELL SYSTEM, INC.

Pioneers and Specialists in

FLOOR-MAINTENANCE EQUIPMENT AND SUPPLIES

BRANCHES IN ALL PRINCIPAL CITIES

"Puzzled over which type of motor to buy?"



In 80% of the Cases, open squirrel-cage induction motors meet the need. They fit most drives, and can be obtained in numerous standard and special designs to meet varying conditions of starting torque, slip, etc. They are also the most economical type to buy and to maintain. Allis-Chalmers builds induction motors in sizes from ½ to 10,000 hp — or higher, if needed.

For Tough Starting Conditions, wound-rotor induction motors are recommended. Their high starting torque, at comparatively low starting current, and their controllable speed characteristics are desirable in drives for conveyors, grinding mills and other tough starting assignments. Compact, accessible Allis-Chalmers wound rotor induction motors range in size from 5 to 10,000 hp.

For Slow Speed, direct-connected drives as low as 75 rpm, or other constant speed applications at higher rpm, synchronous motors are a good solution. They are of particular benefit when a system's power factor is low, since they can be furnished for operation at either unity or leading power factor. From 40 hp to 50,000 hp and higher — in bracket bearing, pedestal bearing, or engine types.

Is d-c Available? Then adjustable speed operation is easily obtainable. Allis-Chalmers builds d-c motors from ½ to 10,000 hp and higher — for constant or adjustable speed duty in ranges of 6:1 and lower. By means of a source of d-c voltage, adjustable speed motors may also be designed to operate over a speed range as high as 30:1. Suitable for fans, elevators, etc.

Select from the Complete Allis-Chalmers Line!

NOT JUST FOLLOWING popular choice and using a standard squirrel cage induction motor. But the *right* motor for economy and efficiency.

That means an overall knowledge of *all* types of motors . . . their operation . . . limitations . . . maintenance. And there's where your A-C representative can be a big help. His recommendations are backed by experience . . . and the Allis-Chalmers motor he selects is *itself* backed by 50 years of experience in motor design and building. ALLIS-CHALMERS, MILWAUKEE 1, WIS. A 2304

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One of the Big 3 in Electric Power Equipment-
Biggest of All in Range of Industrial Products

Flexible Equipment

cotton today . . .
synthetics tomorrow

A few simple changes and you're ready to process practically all types of synthetic fibres now in commercial use.

Versatility in equipment is a must today. Continuous production to meet changes in fashion requirements depends upon a mill's ability to change its production setup rapidly and economically.

With Saco-Lowell's flexible equipment, you can blend, prepare and spin synthetics in any combination today . . . and then, with a few simple mechanical changes, convert to cotton processing.

Our engineers will be glad to work with you on any program which you may have under consideration on this important subject of synthetics.

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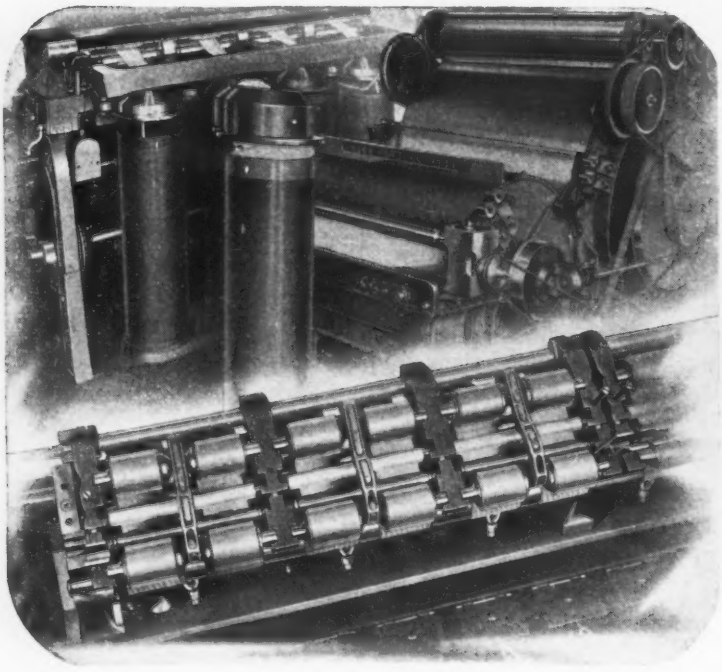
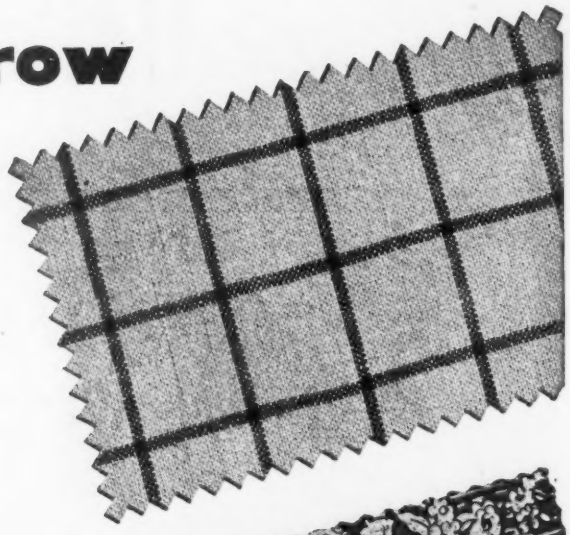
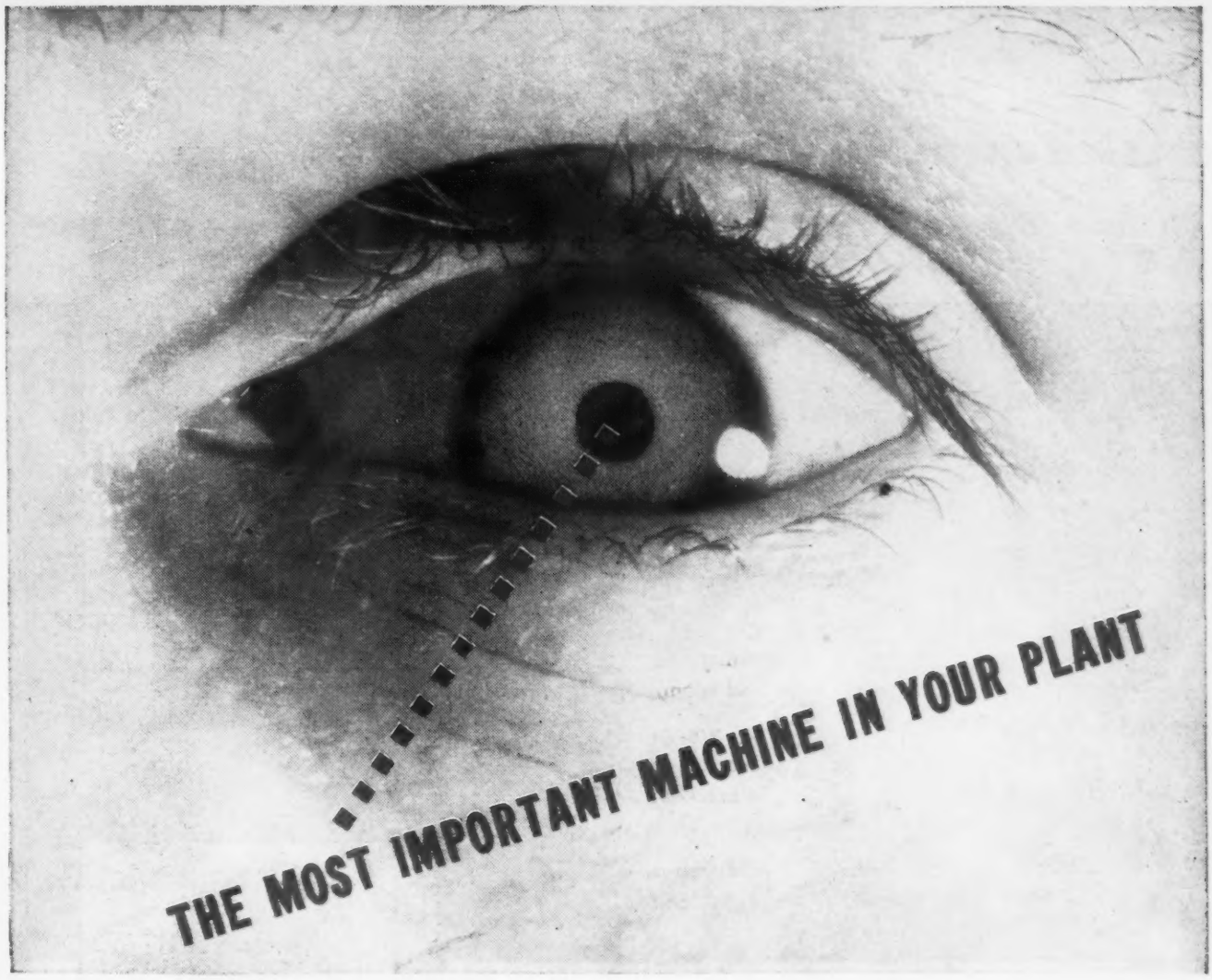






NO MATTER what you manufacture, there's one machine in your plant more important than any other . .

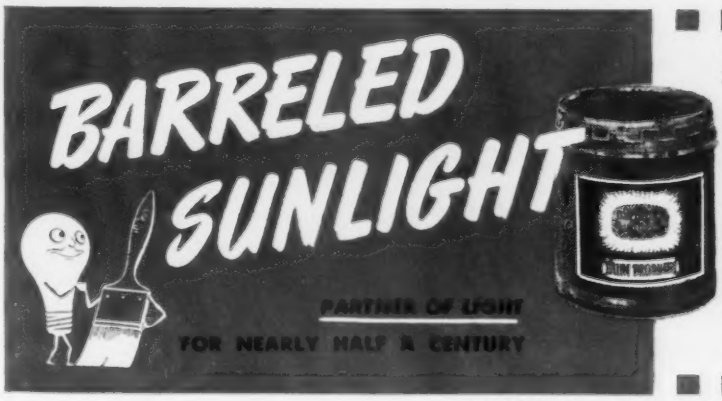
THE HUMAN SEEING MACHINE!

For fast, efficient production your workers must see quickly, easily and *accurately*. And to operate in comfort these "human seeing machines" need ample light of high quality, free of glare and shadows and evenly distributed throughout the work area.

But lighting fixtures alone are not enough. Your local Lighting Engineer will tell you that. For maximum efficiency they must be backed up by ceilings and walls finished with a paint of highest possible reflectivity. For light and paint are PARTNERS in the creation of good seeing conditions.

Alert maintenance and operating men know this means WHITE paint, for white reflects far more light than any other color. They know, too, that if painting is to be a sound investment, the white they buy must be easy to apply on large areas, give good "yardage" without loss of hiding power and remain white for the longest possible time.

That's why for years so many of America's better plants have standardized on "Barreled Sunlight."



U. S. GUTTA PERCHA PAINT COMPANY
2J-I Dudley Street, Providence 1, R. I.

I'd like to know more about the partnership of Light and Paint. Please send me your free booklet, "Light and Color in the Work-World."

COMPANY .....

STREET AND NUMBER .....

CITY ..... ZONE ..... STATE .....

MY NAME IS .....

MY TITLE .....

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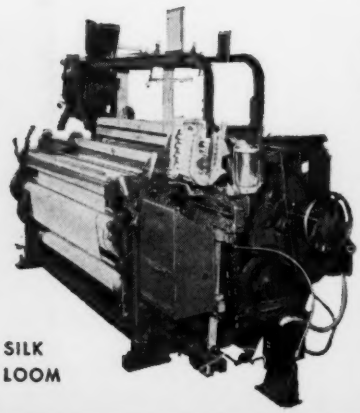
SELF-LOCKING *Protects Adjustments* ON THE CRANK CONNECTOR ASSEMBLY



SILK LOOM

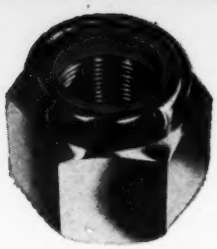
The Red Elastic Collar protects positioned settings against IMPACT! VIBRATION!

Slamming vibration works endlessly to loosen the positioned and prestressed fasteners on the spring compression and fastening rods.

Fastener failure means changed mechanical settings that mark the cloth; misalignment of parts that upset the split-second, synchronized loom timing; and unnecessary wear and breakage to loosened parts. The result? To textile mills: Increased down time; reduced pickage; higher percentages of 'seconds.'

Loom fixers are urged to make their own test of the successful application of ESNA Elastic Stop Nuts illustrated above. All ESNA orders can be filled immediately from stock.

Re-usable Elastic Stop Nuts—with the self-locking, self-sealing Red Elastic Collar that does not deform the bolt, damage the threads or gall the finish—provide dependable protection against Vibration, Thread Corrosion, Thread Failure, and Liquid Seepage. ESNA engineers are now ready to study your fastener problems. Address: Elastic Stop Nut Corporation of America, Union, N. J. Sales Engineers and Distributors are located in many principal cities.



LOOK FOR THE RED COLLAR THE SYMBOL OF SECURITY

It is threadless and dependably elastic. Every bolt—*regardless of commercial tolerances*—impresses (does not cut) its full thread contact in the Red Elastic Collar to fully grip the bolt threads. In addition, this threading action properly seats the metal threads—and eliminates all axial play between the bolt and nut.

All ESNA Elastic Stop Nuts—*regardless of size or type*—lock in position anywhere on a bolt or stud. Vibration, impact or stress reversal cannot disturb prestressed or positioned settings.

ELASTIC STOP NUTS

INTERNAL WRENCHING

ANCHOR

WING

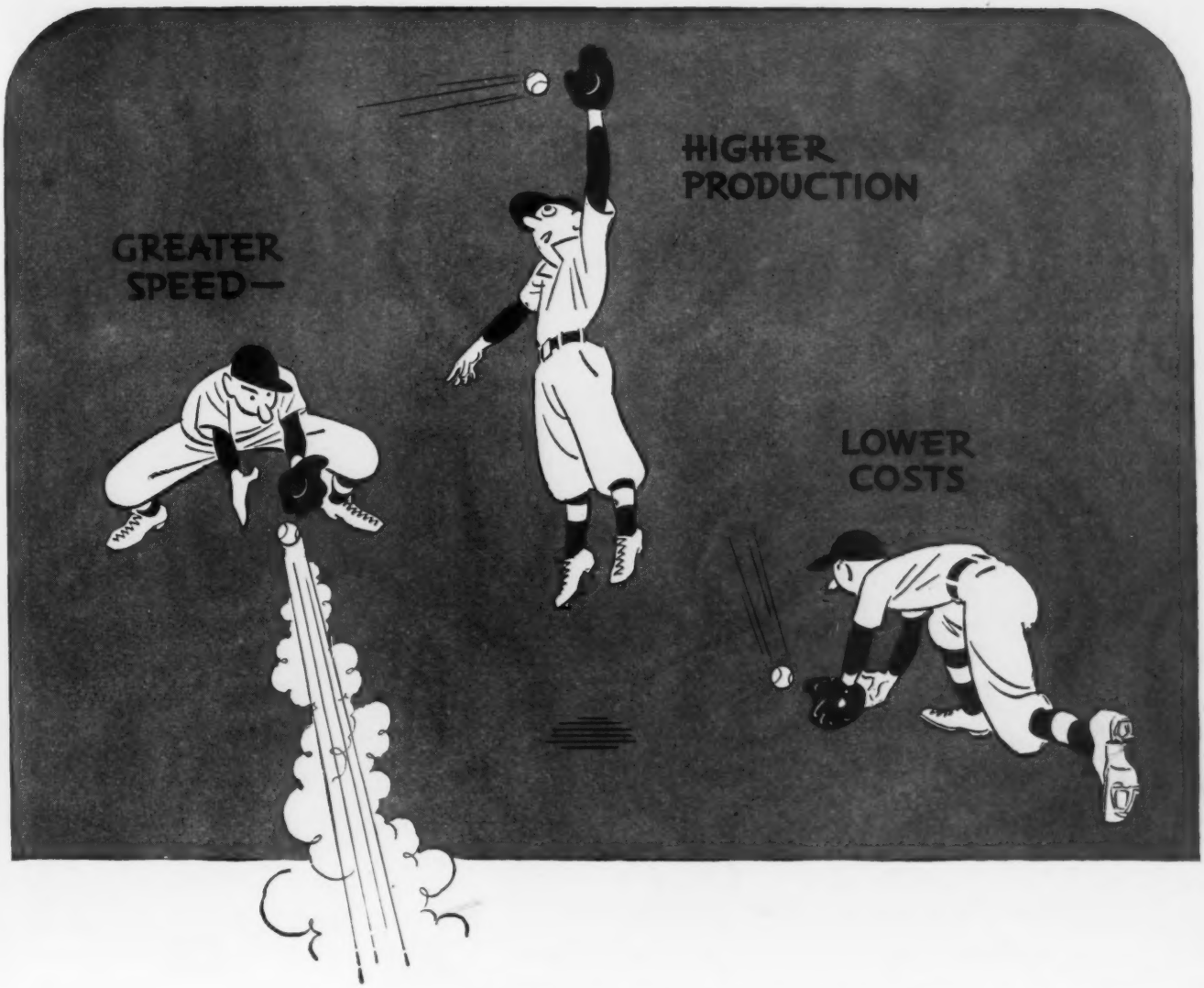
SPLINE

CLINCH

GANG CHANNEL

CAP

PRODUCTS OF: ELASTIC STOP NUT CORPORATION OF AMERICA



ONE place to initiate lower manufacturing costs is in the machines in the production line.

High speed work with extreme accuracy is definitely a function of New Departure ball bearings.

Operating with less friction and less wear, the ball bearing is a "natural" for today's exacting manufacturing requirements.

An investment in machines of modern ball bearing design, is an investment in *faster* production — *lower* costs.

nothing rolls like a ball

NEW DEPARTURE
BALL BEARINGS

3493

NEW DEPARTURE • Division of GENERAL MOTORS • BRISTOL, CONN. • Branches in DETROIT, CHICAGO, LOS ANGELES

If you need a long-life compressor...one that has the stamina to generate Air Power continuously at full capacity, 24 hours every day, week after week...*you need an Ingersoll-Rand Class "ES."*

This heavy-duty compressor is designed, built, tested, and rated for severe service throughout many years. In addition, it is the most efficient, trouble-free single-stage compressor available. For these reasons an "ES" will save you hundreds, perhaps thousands, of dollars during its lifetime.

Whenever you have problems concerning Air Power... its generation, its distribution, or its thousands of labor-aiding uses...call on an I-R Engineer. He can help you in many ways.

WITH "ES"

Heavy Duty COMPRESSORS

- Sizes 5 to 125 hp.
- Liberal valving with Channel Valves.
- Free-air unloaders on each inlet valve.
- Thorough water-jacketing around all valves.
- Completely accessible, oil-tight frame.
- Double-row Timken bearings.
- Constant-speed control; or dual control, permitting either constant-speed or automatic-start-and-stop.
- Pressures 5 to 150 psi single stage.
- Also to 500 psi two-stage; 2500 psi three-stage.
- V-belt, flat-belt, or drive by synchronous motor mounted on crankshaft. Also steam drive with steam cylinder between air cylinder and frame.

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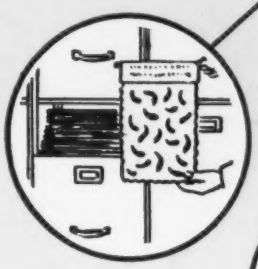
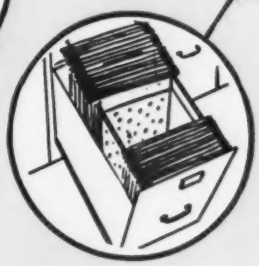
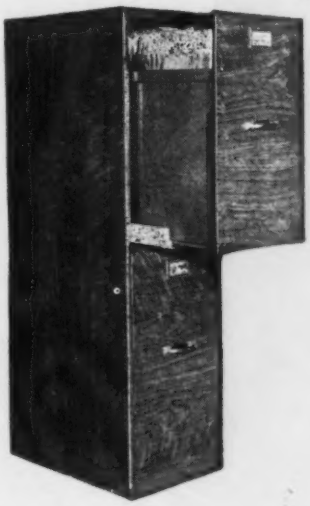
Keeping Swatches In Hand







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makes all three

ONLY DU PONT makes all three—acetate rayon, viscose rayon, and nylon.

Du Pont has a staff of more than 800 men and women engaged every business day in textile fiber development and research.

And Du Pont has thousands of other chemists and scientists at work on background research in chemistry and engineering out of which may come tomorrow's biggest news in textiles.

Look to Du Pont for high-quality rayons. Look to Du Pont for help in combining nylon's lightness, elasticity and long wear, with rayon's versatile beauty.

Look to Du Pont for tomorrow's new and exciting developments in fibers.

Whatever your textile troubles in 1947, whatever your needs in fibers—for nylon, for viscose or acetate rayon—depend on Du Pont!

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For NYLON
For RAYON
For FIBERS to come...look to Du Pont

BETTER THINGS FOR BETTER LIVING...*THROUGH CHEMISTRY*

DU PONT
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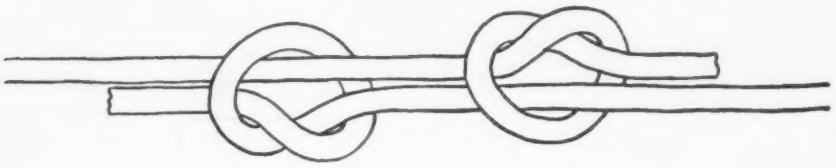
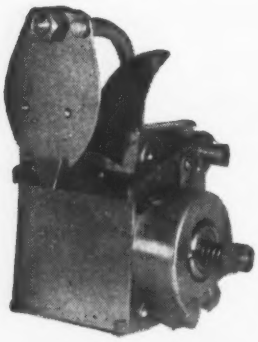
DO YOUR KNOTS SLIP?

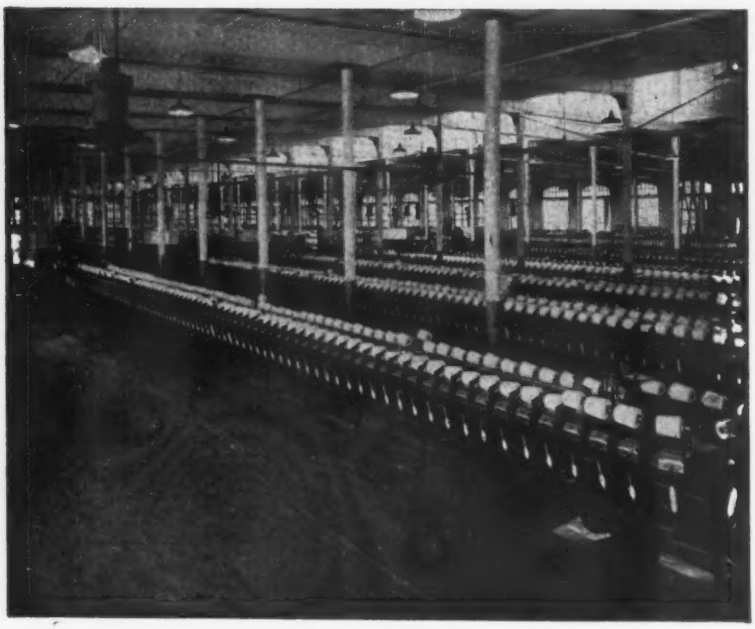


USE THE FISHERMAN'S KNOT

TWO SINGLE KNOTS PULLED UP AGAINST EACH OTHER



The knot tier is a small precision made unit that can be replaced by a spare knotter in two minutes



All of our Traveling Spindle Winders tie this small, smooth, non-slipping Fisherman's knot

ABBOTT MACHINE COMPANY

WILTON, N. H.

SANDOZ PRESENTS *The color achievement of the month*

Nylon Flattery BY VAN RAALTE

The confidence that Van Raalte expresses in its slogan "Because You Love Nice Things" is attributable, in part, to the knowledge that the colors used in its hosiery, gloves and underthings are true, uniform, serviceable.

Among Van Raalte suppliers is included Sandoz, manufacturers of dyestuffs that are depended upon — in all branches of the textile industry — for efficiency in handling and maximum resistance to the effects of wear.

Typical of Sandoz' own "color achievements" are the Artisil direct dyes for nylon hosiery. The latest member of this series — ARTISIL DIRECT YELLOW G — differs from many acetate yellows in that it dyes full strength on nylon by the combined dyeing and scouring methods. The high pH does not affect the shade, strength or fastness.

For finishing, CERANINE HC is recommended. This cationic softener does not yellow whites or change the shade of dyed goods. Light fastness is not impaired.

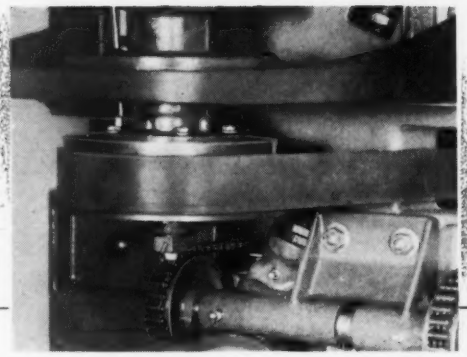
For acid, chrome or direct dyes... or auxiliary chemicals... for both natural and synthetic fibres... be guided by the successful "color achievements" you have been seeing in these Sandoz advertisements. Sandoz application laboratories are located in New York, Boston, Philadelphia, Los Angeles, Charlotte, Toronto, where stocks in wide range are carried. Other branches are in Chicago, Paterson and Providence.

SANDOZ CHEMICAL WORKS, INC., 61 VAN DAM STREET, NEW YORK 13, N.Y.

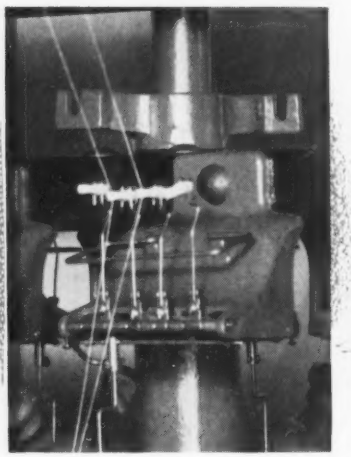
SANDOZ *thinks ahead with textiles*

S SANDOZ

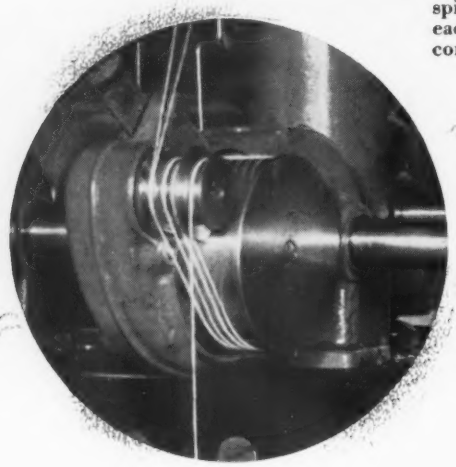
One is the magic number for ring-twisting of spun yarns



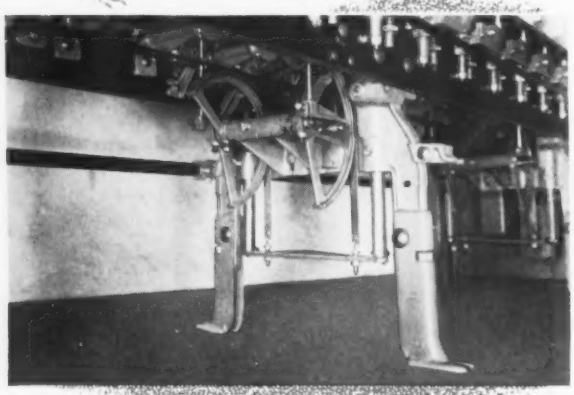
Atwood Ring Twister has SINGLE endless, lapless drive belt for 100 spindles. Delivers equal power to each spindle. Spindle speed is constant, twist accurate.



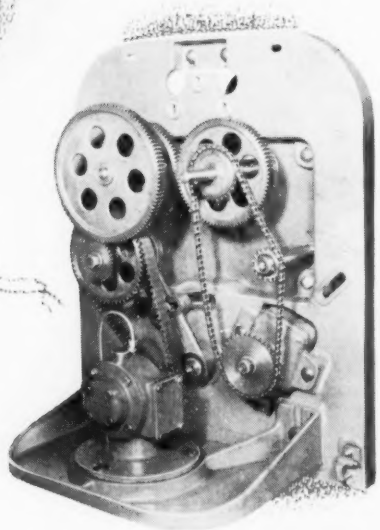
ONE feed roll for each spindle permits use of individual stop motions and makes it easy to thread up with a free movement of the hand.



Automatic stop motion permits tying knots in SINGLE ends — eliminates roller laps and short plies. Only ONE spindle stops — others go on producing. Operator can work in cycle.



Lifter rod unit traverses ring rail and thread board through bearings which are INTEGRAL part of middle stand.



ONE gear is all you have to change in order to change the twist on Atwood Ring Twister. Reversing twist is just as easy.

It's because of such outstanding features that the Atwood No. 10 Ring Twister is considered the No. 1 method of doubling and twisting in ONE operation.

ATWOOD DIVISION

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Universal Winding Company

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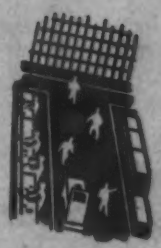
Because Industrial Asphalt Mastic Floors made with Flintkote Flooring Emulsions can be laid quickly . . . over concrete, wood, steel, brick, or any other firm base.

They're equally efficient either for new construction or for resurfacing . . . for large areas or small . . . may be placed by hand troweling or power float method.

Flintkote Flooring Emulsions give you a tough, durable, heavy-duty industrial mastic floor with high traction value wet or dry. And one that can resist the heaviest traffic.

Workers like mastic because it forms a warm, comfortable, resilient working surface . . . because its shock-absorbing and sound-deadening qualities make any plant a more quiet, more pleasant place to work.



These are a few reasons why we recommend Industrial Asphalt Mastic Floors made with Flintkote Flooring Emulsions for almost *any* industrial flooring requirement. Write for specifications today.

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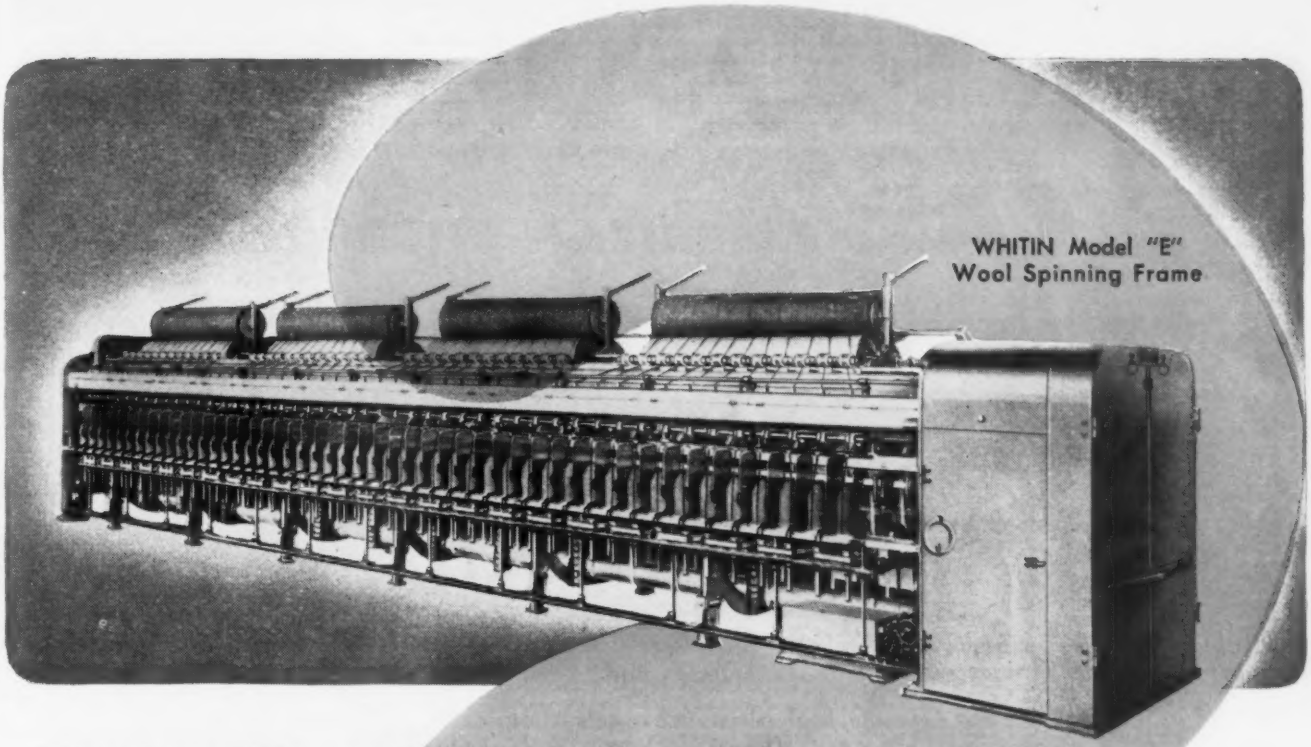

THERE'S NO QUESTION . . .

about the increasing usage of Whitin Wool Spinning Frames.

Mill after mill has found its way to more profitable operation through the installation of Whitin large-package wool spinning frames. There are definite reasons why these Whitin Spinning Frames are being used to such great advantage:

HIGHER PRODUCTION: Continuous, rather than intermittent spinning is an outstanding characteristic of this machine and, within reasonable limits, twist does not affect yield. These two facts, plus infrequent doffing, result in increases in production of from 100 to 300% over other spinning methods.

FLEXIBILITY: Changes in draft, direction of twist and the build of the package can easily be effected by simple adjustments. The weights of yarn to be spun can also be readily changed. A wide range of worsted effects, from lofty to lean, can be obtained by varying the settings.

ECONOMY: The uniformity and evenness of the yarn produced results in yarn of increased strength. This fact, together with the use of large packages, reduces knots up to 75% when compared with competitive spinning methods. The result is less time loss in doffing, burling, spooling, winding and twisting. Even greater economies can be obtained when the large frame packages are re-wound on Whitin-Schweiter Automatic Filling Bobbin Winders.

Write for descriptive literature on both Whitin Model "E" Wool Spinning frames . . . and Whitin-Schweiter Automatic Filling Bobbin Winders.

Whitin MACHINE WORKS

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HYCAR AMERICAN RUBBER LATEX...

a new material for impregnating and coating fabrics, fibres, and threads

HYCAR latex, when used as a coating or impregnant for even inexpensive materials, imparts many desirable properties not easily obtained with other coatings and impregnants.

For example, high resistance to oils, chemicals, abrasion, and flexing—to name a few—are added in very desirable degrees by HYCAR latex, used as an impregnant or a coating. And HYCAR-impregnated materials may then be coated with any one of a number of other materials to impart additional properties.

All of this can be done, safely and simply, with HYCAR latex, because it's an inherently easy and safe material to handle. No vulcanization is required. Normal drying times are used. No explosive solvents need be handled. Nor is there any need for cumbersome and costly solvent recovery systems.

We would be glad to work with you on any problems relating to the use of HYCAR American rubber latex. For more information write Dept. HL-5, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio.

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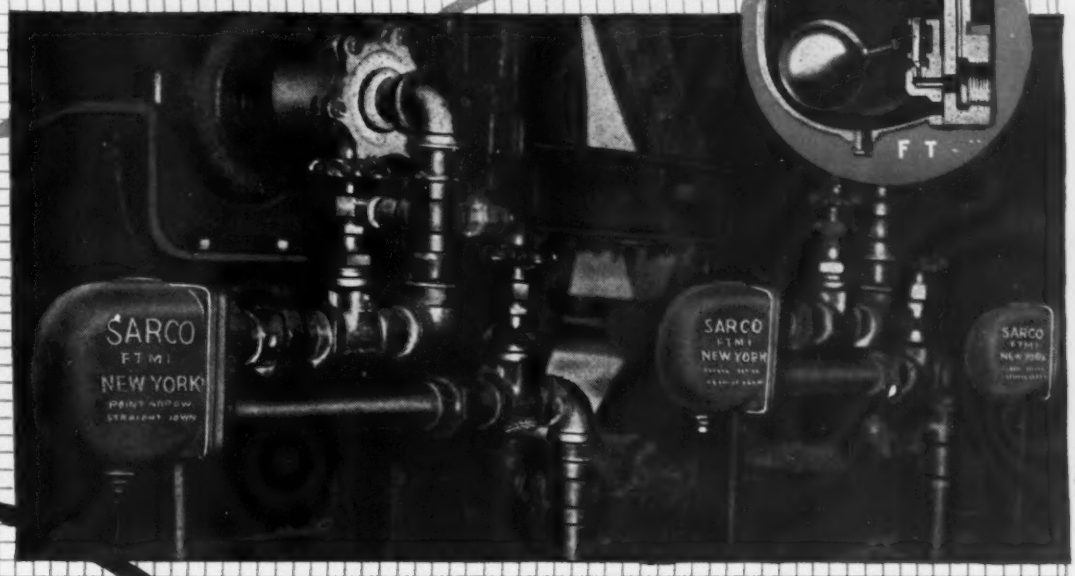
KEEPING HEAT UP-



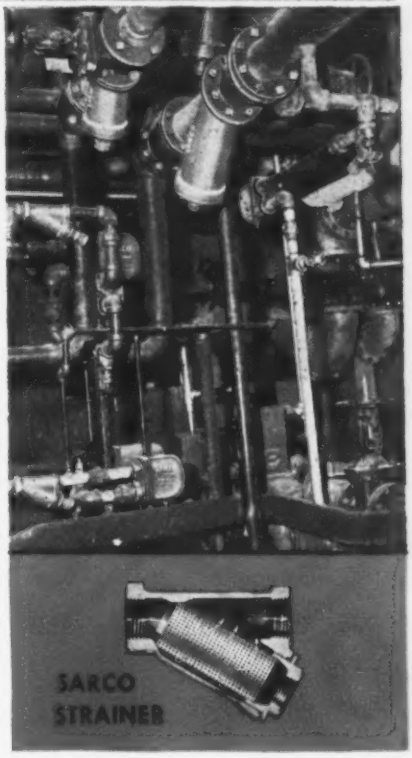
-and Costs Down

The top illustration shows the Sarco Float-Thermostatic Steam Trap on slashers in a textile mill—now operating satisfactorily after many months of condensate difficulties. The same story has been told and retold by users of similar machines in the paper and dyeing industries.

At the right is a section of a new and very modern rug mill which chose the reliability of Sarco FT traps and Strainers for its extensive air conditioning hook-ups because the engineers had seen their worth proven on other jobs for many years.

In the dyeing, chemical and food industries, four entirely different types of Sarco Steam Traps are combined with various forms of Sarco heating and cooling controls to provide efficient team work that can't be beaten.

Even on unit heaters, radiators and steam lines it is important to select the right steam trap or control. The Sarco representative near you will be glad to study, select and recommend the combination that will speed production and reduce fuel costs in your plant.



165

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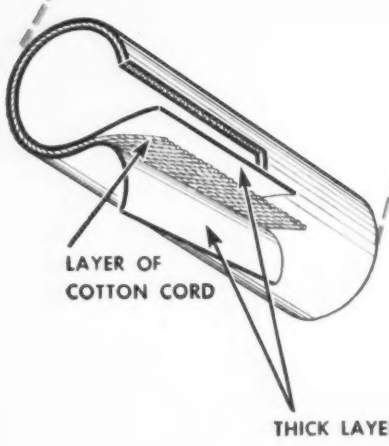


Exclusive Armstrong Construction Gives You Extra Advantages

Diagram of Accotex Apron at left shows how heavy, seamless layers of non-oxidizing, highly oil-resistant synthetic rubber enclose a sturdy, non-stretch cord interliner. This special Armstrong construction not only helps prevent stretching or tearing of Accotex Aprons but also offers these other big operating advantages:

- **LONG LIFE:** Accotex Aprons in service for more than five years show little sign of wear.
- **CLEAN RUNNING:** Accotex Aprons do not crack or scuff. Thus they assure cleaner running work and less waste.
- **REDUCED LAPPING:** Accotex Aprons are not affected by temperature or humidity. They perform with a minimum of lapping.
- **GOOD FRICTION:** The efficient "grip" of Accotex Aprons keeps slippage at a minimum.

ACCOTEX COTS
CORK COTS

BETTER PRODUCTION

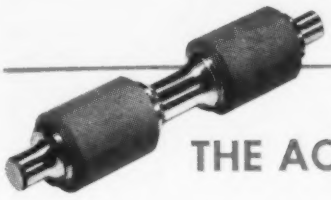
wearing ACCOTEX APRONS

Accotex Long Draft Aprons help keep production rolling because they wear uniformly. Every Accotex Apron is made of a tough synthetic rubber compound that is controlled during manufacture to eliminate the variations normal in a natural product. Thus when you run on Armstrong's Accotex Aprons, apron replacement normally need be done only at regular overhauling periods.

Controlled uniformity also provides better drafting, better fiber control. Throughout their long life, you can count on dependable, uniform service from Accotex Aprons.

To provide added assurance that Accotex Aprons will not tear, break open, or stretch, Armstrong developed a special construction that uses heavy seamless layers of synthetic rubber to enclose a strong, non-stretch cord interliner.

Install Armstrong's Accotex Aprons on a test frame in your mill. See how these superior aprons step up yarn quality and increase poundage. Ask your Armstrong representative for samples, prices. Or write today to Armstrong Cork Co., Textile Products Dept., 8309 Arch Street, Lancaster, Pa.



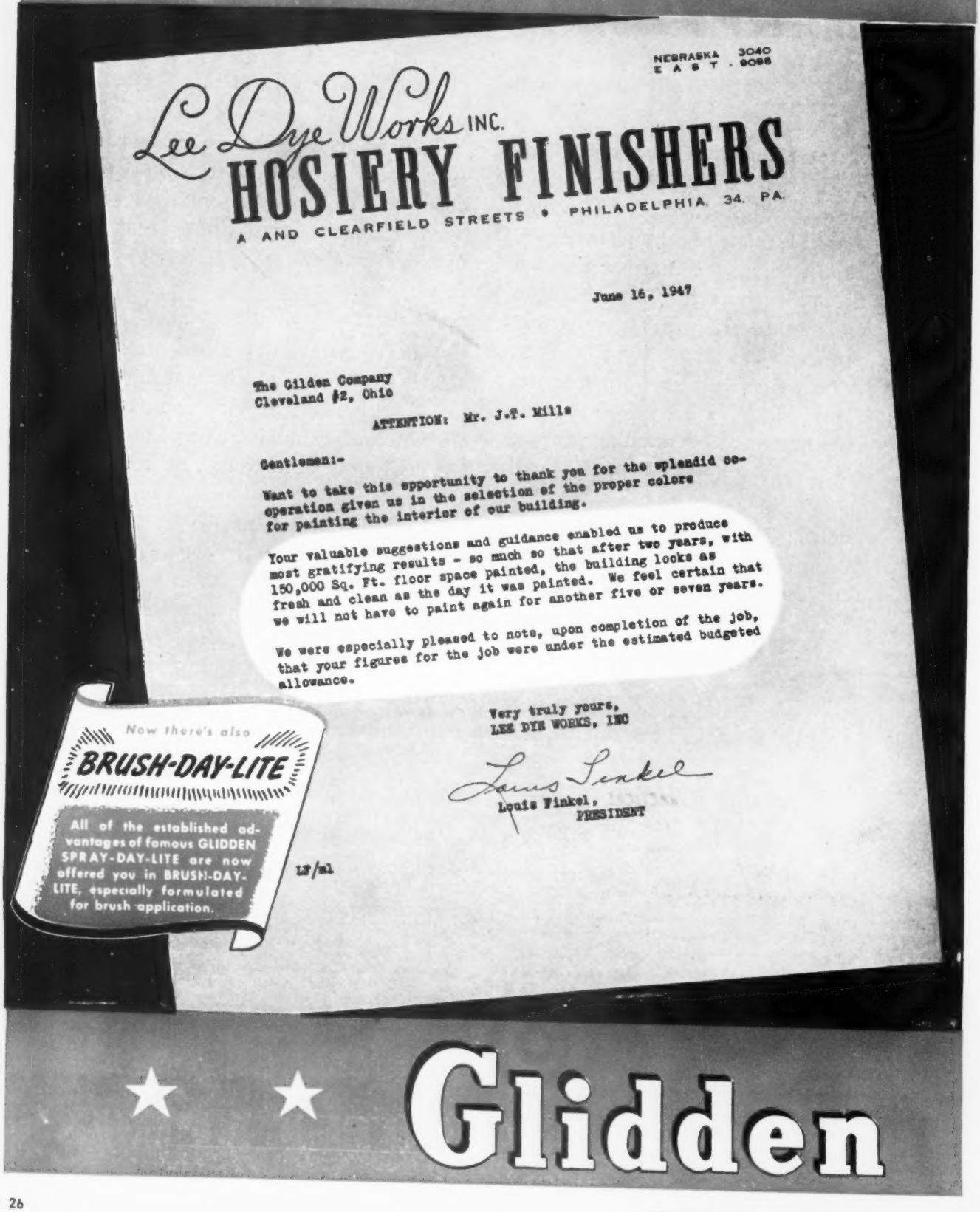
THE ACCOTEX COT . . . by the makers of Accotex Aprons

The most widely used textile roll coverings, Accotex Cots are the result of the same specialized research and technical skill that produced the Accotex Apron. Here are eight reasons why Accotex Cots spin higher quality yarn and increase poundage.

1. **LONG SERVICE**—Accotex Cots are tough. And they can be rebuffed 5 or 6 times.
2. **GOOD DRAFTING**—Accotex Cots retain their excellent grip, because their cork-and-synthetic compositions resist slicking.
3. **REDUCED EYEBROWING**—The resistance of cork-and-rubber to slicking minimizes eyebrowing.
4. **REDUCED LAPPING**—Accotex Cots have no affinity for textile fibers and are not affected by temperature or humidity.
5. **GOOD START-UP**—Accotex Cots are non-thermoplastic, resist flattening.
6. **SOLVENT RESISTANCE**—Accotex Cots are not affected by oil, water, dyes, or any of the commonly used textile solvents.
7. **SEAMLESS CONSTRUCTION**—Accotex Cots have no seams—no structural weakness to cause premature failure.
8. **QUICK ASSEMBLY**—Accotex Cots are ready glued for easier, quicker assembly.

ARMSTRONG'S ACCOTEX APRONS

More proof of *LASTING* satisfaction when the paint used in plants is....



NEBRASKA 3040
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Lee Dye Works INC.
HOSIERY FINISHERS
A AND CLEARFIELD STREETS • PHILADELPHIA, 34, PA.

June 16, 1947

The Gilden Company
Cleveland #2, Ohio

ATTENTION: Mr. J.T. Mills

Gentlemen:-

Want to take this opportunity to thank you for the splendid co-operation given us in the selection of the proper colors for painting the interior of our building.

Your valuable suggestions and guidance enabled us to produce most gratifying results - so much so that after two years, with 150,000 Sq. Ft. floor space painted, the building looks as fresh and clean as the day it was painted. We feel certain that we will not have to paint again for another five or seven years.

We were especially pleased to note, upon completion of the job, that your figures for the job were under the estimated budgeted allowance.

Very truly yours,
LEE DYE WORKS, INC

Louis Finkel,
PRESIDENT

LF/ml

Now there's also
BRUSH-DAY-LITE
All of the established advantages of famous GLIDDEN SPRAY-DAY-LITE are now offered you in BRUSH-DAY-LITE, especially formulated for brush application.

★ ★ Glidden

SPRAY-DAY-LITE

Specify GLIDDEN SPRAY-DAY-LITE ... It's your best buy for interior painting on all these counts...

1. SPRAY-DAY-LITE gives conventional two-coat results in only one coat.
2. Increases lighting efficiency by giving maximum light reflection and diffusion.
3. Provides smooth, solid covering over grimy, dirty and badly discolored surfaces of almost any type.
4. Its intense white does not yellow with age (also available in 10 attractive colors).
5. Durable, eggshell finish eliminates eye-straining glare—washes like tile.
6. Sprayed or brushed, it does not sag or run; produces little fog or mist when sprayed.

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11001 Madison Avenue, Cleveland 2, Ohio

- ☐ You may send your book on the scientific use of color in industrial plants, "Sight Perfection."
- ☐ You may send your SPRAY-DAY-LITE Color Chart showing the 10 attractive shades and suggested color combinations.
- ☐ You may have your representative call and demonstrate SPRAY-DAY-LITE in our premises without obligation on our part.

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"Small Steps are Easy..."

EACH YEAR—REPLACE AT LEAST 10%* OF YOUR LEAST EFFICIENT LOOMS

*That 1938 figure of 10% needs to be marked up, today, with this one condition firmly in mind:

> TOTAL DEPRECIATION, as of now, *is not figured fully or accurately* unless you FIRST figure the full duration and accelerated rate of wartime depreciation . . . and then add the rate of postwar depreciation.

This will probably peg the basic percentage figure for *your* replacement fund somewhat higher than 10%. But it will still be a *small and easy step* . . . in any *systematic* replacement fund definitely earmarked for new weaving equipment.

And it's shrewd business to work out your own loom-replacement percentage *now.* For then you are set up to bridge (without unexpected stretch) the financial gap between your present looms—and the new C&K Looms which will swiftly return your investment with their higher speeds . . . easier operation and lower maintenance . . . higher production of finer fabrics . . . and fewer loom-stops than ever before.

So set up a *tangible* replacement fund *today* . . . figured fully and accurately . . . and you have taken the *first* easy step to future weaving profits.

Crompton & Knowles Loom Works

WORCESTER 1, MASSACHUSETTS, U. S. A.
PHILADELPHIA, PA. • CHARLOTTE, N.C. • ALLENTOWN, PA.

CROMPTON & KNOWLES JACQUARD & SUPPLY CO., PAWTUCKET, R. I.

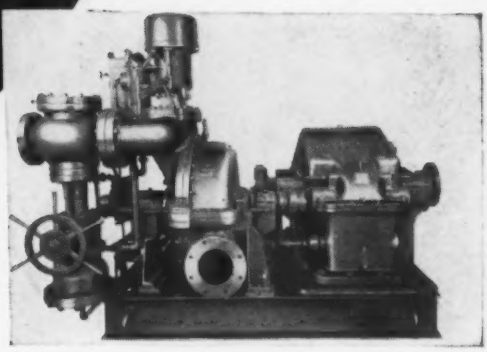
between Today's Knowledge . . .
and Tomorrow's Looms

Keep within ½ RPM?

THIS

TURBINE DRIVE

can do it!



The new electric governor used on the Type DE steam turbine has an amazing ability for "seeing" speed variations. It will detect (and correct for) speed variations as minute as 1/10 of one per cent of the set speed, under steady conditions.

This means, if your processing machines are operating at 500 rpm, that the speed will not vary more than ½ rpm. Such accuracy in your drives can really pay off in greater output and improved quality control.

WIDE RANGE

Accuracy is not limited to a narrow speed range. The drive can be operated over speed ranges as great as 30 to 1, with great accuracy of control. Thus the drive gives versatility to your processing machines—enables them to handle special jobs with ease.

SIMPLE CONTROL

Speed is changed easily by simple push-button control. Should an operating cycle require frequent changes in speed, "pre-set" control can be furnished. With this arrangement a separate push-button is provided for each pre-selected speed.

NO HUNTING

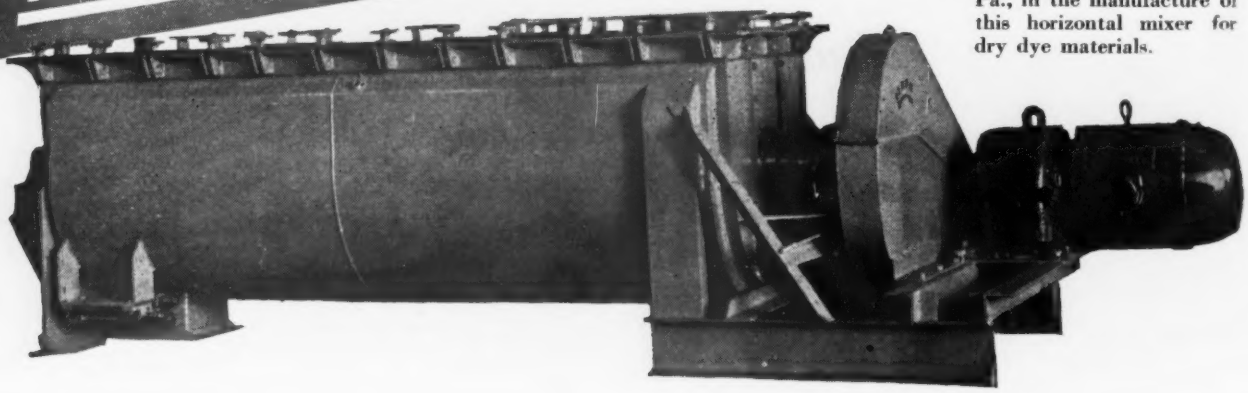
The electric governor changes turbine speed smoothly. Hunting, or speed fluctuation, is eliminated.

Our turbine specialists will be glad to show you how this highly accurate, wide-range drive can step up the output of *your* processing machines. Get in touch with the nearest G-E Apparatus Sales Office, or write Apparatus Dept., General Electric, Schenectady 5, N. Y.

GENERAL ELECTRIC

Stainless-Clad for Protection

Wide for Extra Savings



An easily-cleaned, corrosion-resistant Lukens Clad Steel was used by Sprout, Waldron and Company, Muncy, Pa., in the manufacture of this horizontal mixer for dry dye materials.

• You make *two* big savings with Lukens Stainless-Clad Steels—

1. *PROTECTION with economy.* Compared with solid stainless, you can cut material costs as much as 50 per cent. Yet the same corrosion-resistant face is provided, to protect both equipment and products. Heat transfer efficiency is far superior to solid stainless—approaching that of the backing plate, itself.

The stainless may be of any standard type. It is permanently bonded in a *uniform* thickness to any quality of carbon or low alloy steel —from 5 to 50 per cent of total plate thickness.

2. *FABRICATION with economy.* The widest plate you can use is the cheapest! Less welding footage cuts costs and shortens fabrication time. You can get Lukens Stainless-Clad Steels in plates *up to 178" wide*, or from $\frac{3}{16}$" to over 3" thick.

Save with Standard CLAD HEADS

Spun or pressed, in all standard types and sizes to over 18' in diameter. Write for Bulletin 384. Further information on Lukens Stainless-Clad Steels, Bulletin 338; on Nickel-Clad, Inconel-Clad and Monel-Clad Steels in Bulletin 255. Lukens Steel Company, 406 Lukens Bldg., Coatesville, Pennsylvania.

LUKENS

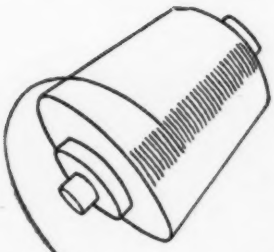
Nickel-Clad Stainless-Clad
Inconel-Clad Monel-Clad
STEELS

★

SOLID METAL ADVANTAGES WITH CLAD STEEL ECONOMY

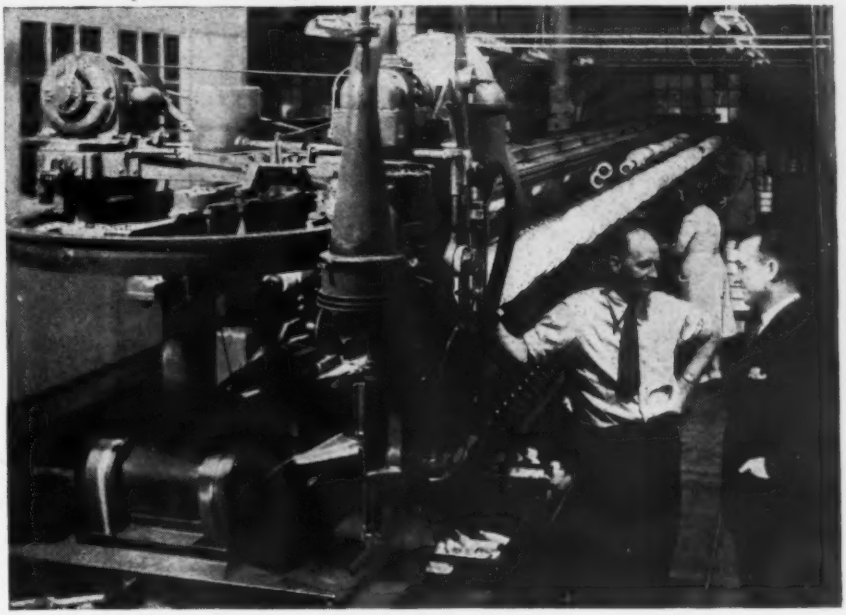
"We've had 7 years of trouble-free spooler operation with

GULF HARMONY OIL"



says the management of this modern weave mill

"...no need for repairs of any kind to lubricated parts"



The Gulf Lubrication Engineer "in the picture" (right) is checking spooler lubrication in this prominent southern mill.

"THIS KIND OF PERFORMANCE is the result of our carefully planned preventive maintenance program," says the management of this mill. "We stick mighty close to such sound principles as the regular application of the right lubricants at the right time—we use Gulf quality oils and greases on a schedule recommended by a Gulf Lubrication Engineer."

"Typical of all our equipment is the record of our spooler, which has been operating steadily since 1940. With Gulf Harmony Oil, there has been no need for repairs of any kind to lubricated parts, no breakdowns, and we've enjoyed remarkably low maintenance costs, year in and year out."

Proper lubrication is the modern way to lower costs and greater, more dependable production. For effective help in installing the best lubrication practice in your mill, call in a Gulf Lubrication Engineer today. He will assist you to get the advantage of highest quality lubricants, advanced engineering service, and up-to-the-minute research. Write, wire, or phone your nearest Gulf office.

Gulf Oil Corporation · Gulf Refining Company

Division Sales Offices:

Boston · New York · Philadelphia · Pittsburgh · Atlanta
New Orleans · Houston · Louisville · Toledo

GULF INDUSTRIAL LUBRICATION

Research at work

TO BRING YOU MORE

A Westinghouse Research Engineer studies the result of design changes for improved bearing lubrication. Constant fundamental research and experimental activities such as these, combined with the work of specialized engineers, account for the many Westinghouse contributions to the Textile Industry.

HOW WESTINGHOUSE RESEARCH BENEFITS THE TEXTILE INDUSTRY

Westinghouse research has made many contributions to the Textile Industry. These developments are the natural outgrowth of a *working* partnership, formed at the time of the early beginnings of mill electrification.

More than 50 years of Westinghouse textile experience is behind each development. From the new multi-motor slasher drive to *Precipitron, the electronic air cleaner—Westinghouse offers related equipment to step up production through better and healthier working conditions . . . uniform quality . . . with lower maintenance per dollar invested.

You'll be assured of *practical* and *economical* answers to your textile problem by calling your nearest Westinghouse office . . . or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.

J-94756

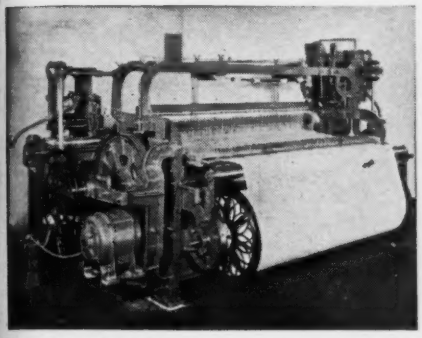
*Reg. Trade-Mark

PRODUCTIVE POWER

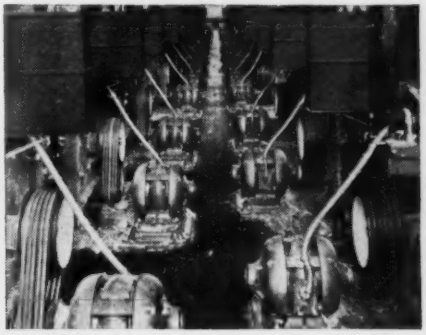
WESTINGHOUSE RESEARCH HAS ONE GOAL: TO HELP YOU PRODUCE FASTER, CHEAPER, BETTER, ELECTRICALLY

New ideas, new processes, new material for making electrical power more productive, flow steadily from the famous Westinghouse Research Laboratories. Many of these developments are at work now in *your* industry...developments—in electricity, in electronics, in processing—which promise many new advancements to help you produce *faster, cheaper, better,* electrically.

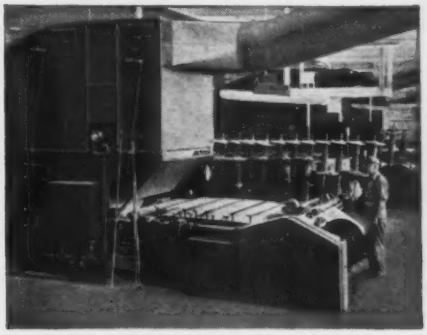
This broad basic research is an important added value to consider when you buy electrical equipment. A complete, separate Westinghouse Textile Industry Department, staffed by engineers intimately acquainted with Textile Industry problems, assures the prompt and *practical* application of new Westinghouse research developments to your special production techniques. Here are 6 Westinghouse contributions to the Textile Industry:



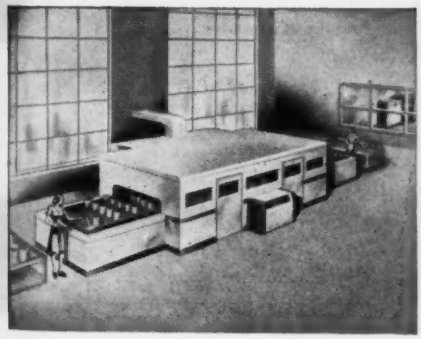
LOOM MOTORS—Quiet, cool, smooth-running motors that cut down radiation heating of your weave rooms—especially designed for peak output. This 1½ hp loom motor drives a modern woolen and worsted loom.



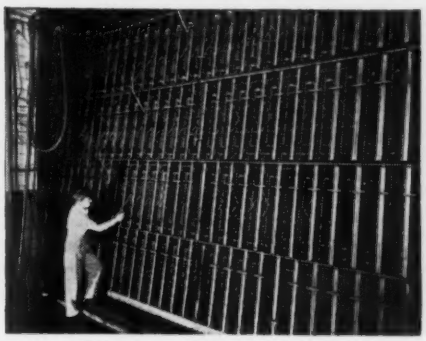
LINT-FREE MOTORS—"The cleanest running motor for textile service"—keeps its insides free of lint because it has *smooth* contours in the path of air circulation. These Westinghouse Lint-Free Motors drive spinning frames at high speed.



MULTI-MOTOR SLASHER DRIVE—The first major improvement in slasher drives for several decades. Rototrol is built into the system to guarantee uniform tension control . . . provides uniform yarn tension—diameter—beam density—better filler yarn spacing, less breakage, more warp on beam.



RADIO-FREQUENCY HEATING—Cuts twist setting and drying time, cake drying and dye package drying to a fraction of that required by conventional methods. Shown is a typical rayon dryer. Note control station at front of dryer.



PRECIPITRON—Keeps air clean and healthy—no "mill room fever"—picks out air-borne particles as small as 1/250,000 inch—eliminates dust, lint, soot, fumes, oil mist and smoke from the spinning, winding, weaving and drying operations—increases top-grade production.

LIGHTING—Modern fluorescent lighting provides maximum "see-ability" in this textile mill. Westinghouse "planned lighting" is added proof of the value of single-source responsibility.

Westinghouse

PLANTS IN 25 CITIES... OFFICES EVERYWHERE

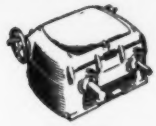
MORE PRODUCTIVE POWER FOR INDUSTRY

TEXROPE .. Greatest Name in V-Belt Drives

"Super 7" V-BELTS
Five Types — Sizes to suit every power transmission job.

Texsteel, Texdrive, "Magic-Grip"
— sheaves in a full range of sizes, grooves.

"Vari-Pitch" SHEAVES
Exact variations in speed, stationery or motion control.



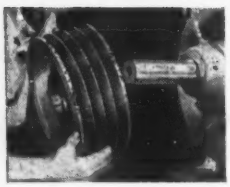
SPEED CHANGERS
Speed variations up to 375% at the turn of a crank.

ENGINEERING
Finest V-Belt engineering talent in the world—at your call.

TEXROPE "Super 7" V-Belts result from the cooperative research of two great companies — Allis-Chalmers and B. F. Goodrich. They are sold only by A-C.

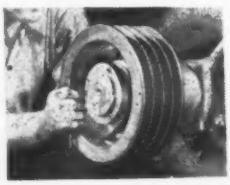
Save time . . . prevent damage to motor and shaft . . . with TEXROPE

"MAGIC-GRIP" SHEAVES



QUICKLY ALIGNED
Because it slides freely on the shaft, it's easy to line up the sheave accurately — for good alignment, smooth operating, longer belt life. It pays to standardize on "Magic-Grip" sheaves.
See Sweet's Catalog

SLIPS ON EASILY
Comes completely assembled. Tapered split bushing provides clearance for even over-size shafts — it's compressed and locked to the shaft with an all-around clamp grip by tightening three cap screws. Can be removed as easily as it goes on.



HERE'S A SHEAVE that goes on *fast*. Less labor cost — less downtime. But that's only part of the saving. There's no forcing or hammering to damage motor bearings — no set screws to mar the shaft. Locks on with a powerful clamp grip that prevents backlash or wobble. And . . . it costs no more than a standard heavy duty sheave of comparable materials and precision workmanship.

Texrope "Magic-Grip" sheaves are made in diameters from 5.4 to 48 inches, two to 12 grooves. They're engineered by Allis-Chalmers, originators of the multiple V-belt drive. For specifications, prices, call your nearest A-C dealer or office. ALLIS-CHALMERS, MILWAUKEE 1, WISCONSIN. A 2221

ALLIS·CHALMERS

One of the Big 3 in Electric Power Equipment — Biggest of All in Range of Industrial Products

1847 1947
A CENTURY OF SERVICE to Industry THAT MADE America Great

STOPS STATIC INSTANTANEOUSLY! SAFELY!

The CHAPMAN Electric Neutralizer

For years, the problem of static in textile mills was costly, time-devouring, constantly troublesome. Static slows down production, spoils work, frays operators' nerves. Humidity control, to a certain extent correct for regain and some other objectives, is not the answer for static. And EXCESSIVE humidity is objectionable and expensive.

IN THOUSANDS OF MILLS—EVERYWHERE,

CHAPMAN Neutralizers are eliminating static with complete safety, comfortably, and at low cost. A great percentage of woolen mills in this country and other countries use the CHAPMAN Neutralizer: 1) on the condensers of wool carding sets; 2) over doffer combs; 3) on Peralta machines; 4) on nappers; 5) on dryers; and on other machines. Worsted mills use the CHAPMAN Neutralizer on cards, and on the worsted drawing process. Where the cotton system is employed in making blended yarns containing wool, acetate rayon, and other synthetics, or in making wool yarns, mills use the CHAPMAN Neutralizer to eliminate static created during the drawing process and with doffing. For many years CHAPMAN has been furnishing its equipment to mills for use on drawing frames of all makes, for all past and present makes of American cards, and most of the British cards. The CHAPMAN Neutralizer is virtually becoming standard equipment for high speed warpers and slashers.

WITH COMPLETE SAFETY

1. The CHAPMAN Neutralizer is absolutely safe.
2. No harmful rays are produced or emanate from it.
3. No shielding is necessary.
4. There is no possibility of immediate or future harmful effects to operators.
5. No state or other government objects to its use.
6. CHAPMAN Neutralizers are tested and approved by the Underwriters' Laboratories.

COMFORTABLY

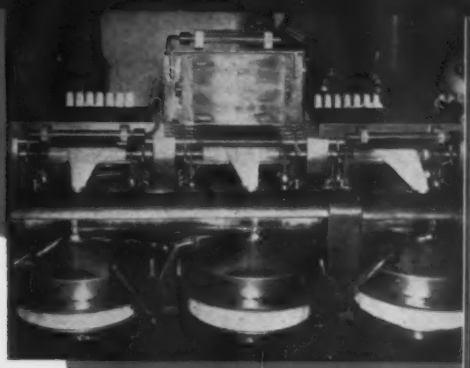
Excessive heat and humidity are not required when CHAPMAN Neutralizers are on the job. Operators work comfortably and, therefore, efficiently.

AT LOW COST

Cost of the small quantity of electrical energy used to operate any CHAPMAN installation is negligible. Savings are immediate in smooth production flow without static interference.

CHAPMAN'S experience through forty years in solving static problems in textile mills is available to you without obligation. Call upon CHAPMAN ENGINEERING SERVICE.

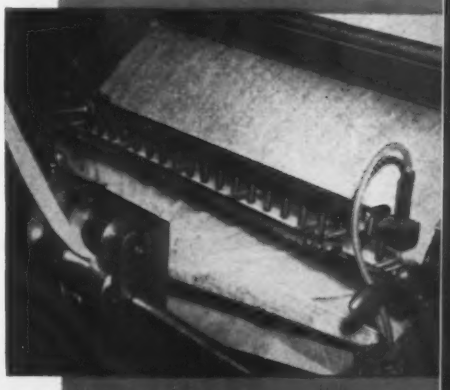
Write for your copy of the new Handbook of the Chapman Neutralizer, Bulletin No. 66.



Three slivers in a line of drawing—equipped with CHAPMAN Neutralizers. One clearer cover is raised.

Two lines of drawing, running blends containing wool, acetate rayon, etc. Equipped with CHAPMAN Neutralizers, insuring full production.

Line of Tape Condensers in a woolen mill, all equipped with CHAPMAN Neutralizers of the individual type.



A close-up view of a cotton card fitted with a CHAPMAN Neutralizer.

CHAPMAN ELECTRIC NEUTRALIZER COMPANY

ESTABLISHED 1904 PORTLAND, 6, MAINE

for faster, easier stripping use

TUFFER Hand Cards clean your rolls quickly with firm, yet flexible, teeth! They bite smoothly and evenly—their strength and durability mean greater stripping efficiency, less effort and arm strain, and less time lost for stripping! Whether it's Midgley's Improved or Howard's Special, you're using the best when you use TUFFER Hand Cards.

Midgley's Improved Hand Stripping Card

Indestructible backs and handles . . . Steel clamps protect edges of the card and hold them securely to the back.

Howard's Special Hand Stripping Card

Ruggedly constructed—pressed steel handle—made of three-ply indestructible wood for strength and light weight.

HOWARD BROS. MFG. CO.

WORCESTER 8, MASSACHUSETTS

Southern Plants: Atlanta, Ga. and Gastonia, N. C. **Branches:** Philadelphia, Pa. and Blanco, Texas
Direct Representation in Canada

A-7

TUFFER CARD CLOTHING *IMPROVES PRODUCTION ALL ALONG THE LINE*

SPACE SAVER

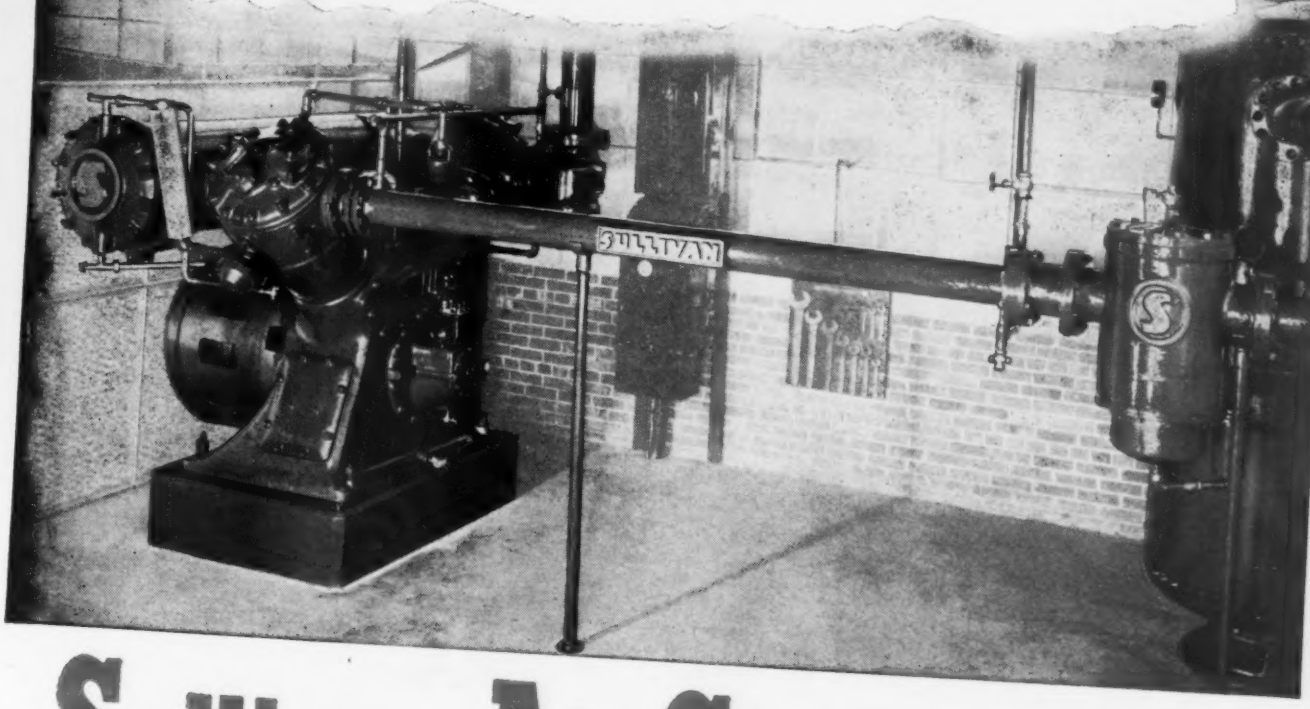
THAT PROVIDES LOW-COST COMPRESSED AIR

SERIES WN-112

for capacities of 378 to 1828 cfm, pressures up to 125 psi

If space is precious in your plant, that's one more reason why you'll want to specify the Sullivan WN-112 Compressor. It's more compact than other compressors of equivalent capacity because of its advanced design and use of alloy metals—and it operates more economically . . . gives longer heavy duty service. Installation is simple, and maintenance low.

For full details write for bulletin A-52



Sullivan Air Compressors

PORTABLE AND STATIONARY — ¼ HP TO 600 HP

ALWAYS DEPENDABLE!

Consult a Joy Engineer

W&D 1512

SULLIVAN DIVISION

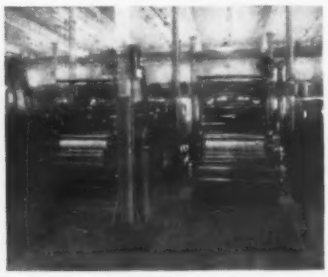
JOY MANUFACTURING CO.

GENERAL OFFICES: HENRY W. OLIVER BLDG., PITTSBURGH, PA.

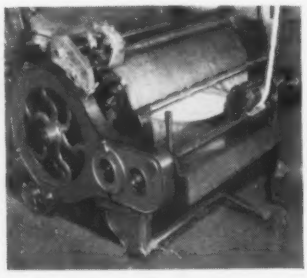
H & B

A Quality machine

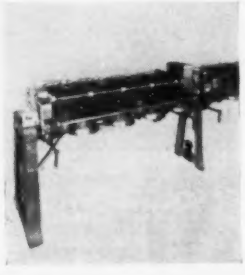
THE DRAWING FRAME is the only unit of mill machinery devoted 100% to the achievement of quality. Cotton comes to the drawing frame as sliver and goes from it to the slubber as sliver,—but sliver of the highest quality. To produce sliver of the highest quality H & B unhesitatingly recommends two processes of drawing. By this method a drawing sliver composed of 36 different card slivers goes from drawing frame to slubber. This double drawing process results in more and better parallelization of the fibres and ultimately in more even yarn.



RAW COTTON TO LAP



TO SLIVER



TO SLIVER

This is why we say, *"The drawing frame is the only unit of*

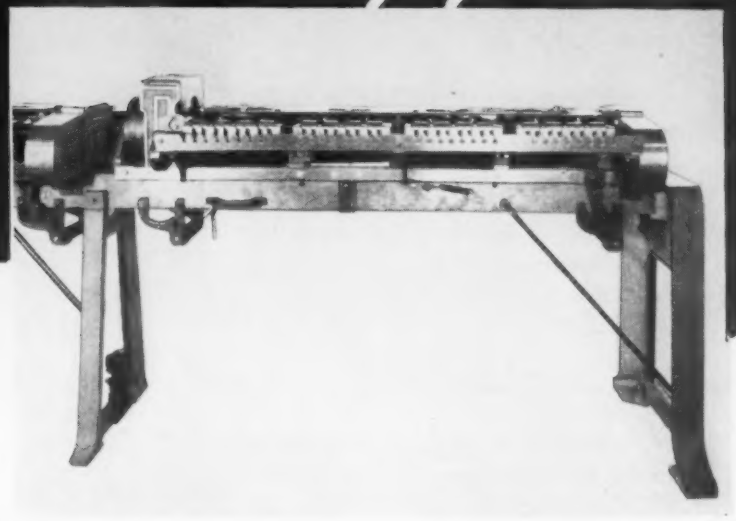
H & B AMERICAN

Builders of Modern

FACTORY, EXECUTIVE OFFICES AND EXPORT

DRAWING FRAME

for a Quality process



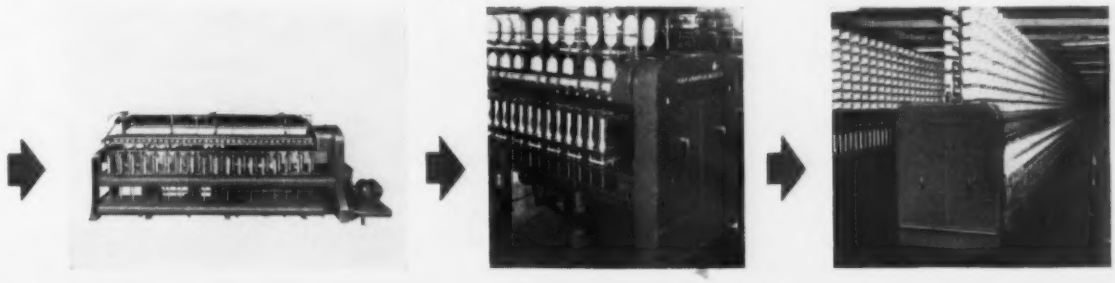
The H & B Drawing Frame incorporates several features that help make it a valued performer in many mills where the emphasis is on the quality of the end product.

1 Most sensitive and accurate electric or mechanical stop motions.

2 Helical cut draft and calender roll gearings.

3 Oil-lite bearings on top rolls.

4 Redesigned calender roll covers.



TO ROVING **TO YARN** **TO THREAD**

mill machinery devoted 100% to the achievement of quality."

MACHINE CO.

Textile Machinery

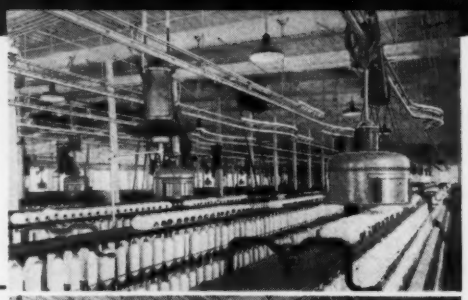
DIVISION PAWTUCKET, RHODE ISLAND, U.S.A.

BRANCH OFFICES
ATLANTA, GA.
815 CITIZENS AND SOUTHERN NATIONAL BANK BUILDING
CHARLOTTE, N. C.
1201 JOHNSTON BUILDING

Automatic Cleaning PAYS

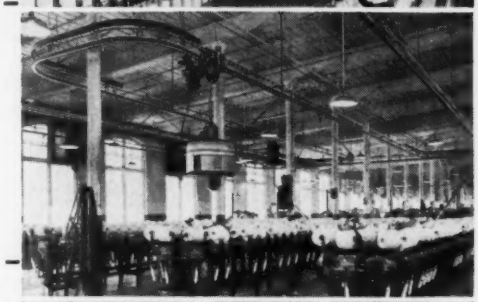
OVER SPINNING FRAMES

Lint is removed before it can accumulate and cause damage to yarn or spinning operations. Overhead travelling cleaners not only keep the frames clean but also send a blast of air toward the ceiling to eliminate hand cleaning of overhead equipment.



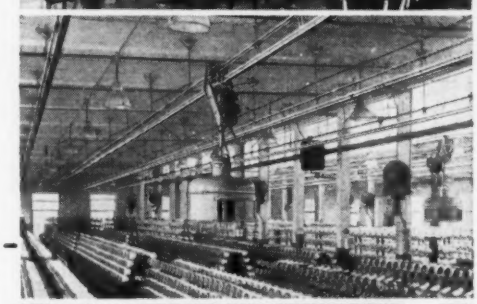
OVER WINDERS

High speed operation of winders can be greatly retarded by excessive lint. By preventing any accumulation on these machines maximum production is assured.



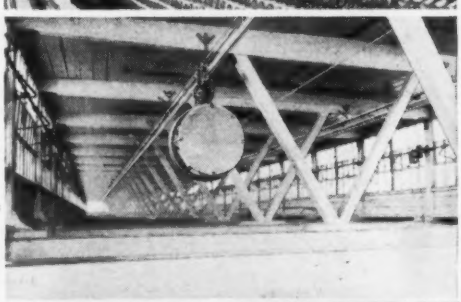
OVER TWISTERS

A swirling column of air circulates freely through twister creels to eliminate breakage due to line accumulation. Low head-room blower units overcome unusual ceiling conditions over high creels.



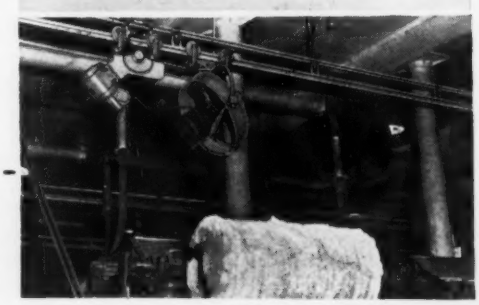
IN MONITORS

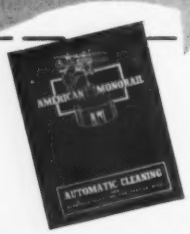
A propeller type fan distributes high velocity air currents across all structural members within the monitor. This replaces hand cleaning, breaks up air pockets and keeps the humidity evenly distributed over the work below.



OVER CARDS

Card room ceilings are notoriously hard to keep clean. A high velocity column of air from a travelling fan directed against the ceiling prevents accumulation of fly on ceiling equipment thereby eliminating the cost of hand cleaning as well as lost card production.





Let an American MonoRail Engineer explain the advantages of Automatic Cleaning. This information will be gladly given without obligation. Send for fully illustrated catalog "Automatic Cleaning and Overhead Handling for Textile Mills."

THE AMERICAN MONORAIL COMPANY

13108 ATHENS AVENUE **CLEVELAND 7, OHIO**

this grocer's floor had become a skating rink

...BUT EMPLOYERS MUTUALS SAFETY ENGINEERING MADE IT SAFE AGAIN

Pride of a super grocery was its beautiful tile floor. But through years of cleaning, a greasy substance had accumulated in the joints—and more and more customers slipped and complained.

It became a question of solving the problem or installing a new floor. Many attempts at a solution had failed. Employers Mutuals safety engineers suggested a raised abrasive strip in the joints of the tiles. The result: the floor was saved, the slipping was stopped, the customers' complaints ceased.

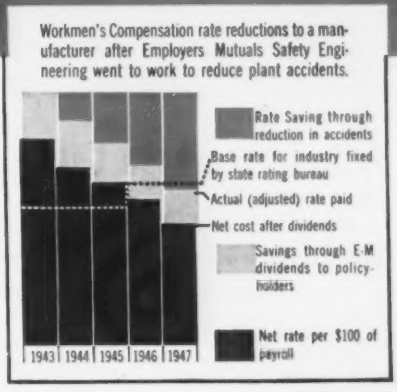
* * *

It is in such cases that the real spirit of Employers Mutuals as a service organization, rather than just an insurance selling organization, becomes vital to you. For Employers Mutuals provide specially trained people skilled in safety work—in accident and fire prevention, industrial safety and health education programs—in prompt claim payment, and in other services.

Employers Mutuals are mutual companies, organized, operated and managed for the welfare of its owners—the policyholders. Therefore they furnish all services that help to reduce your insurance costs and at the same time pay back to you—its owners—all savings beyond ample legal reserves, in the form of dividends. All policies are nonassessable.

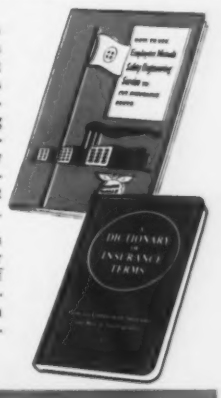
* * *

It is the way—the human way—in which Employers Mutuals company-trained men analyze your casualty and liability insurance problems, write your policies, study your operations, and pay your claims, that result in lower insurance costs and return to you part of the premium you have paid.


Workmen's Compensation rate reductions to a manufacturer after Employers Mutuals Safety Engineering went to work to reduce plant accidents.
Rate Saving through reduction in accidents
Base rate for industry fixed by state rating bureau
Actual (adjusted) rate paid
Net cost after dividends
Savings through E-M dividends to policyholders
Net rate per $100 of payroll
1943
1944
1945
1946
1947

A new booklet, "How to Use Employers Mutuals Safety Engineering to Cut Insurance Costs," explains this vital service and its importance to you in reducing your insurance and operating costs. Get a copy from the Employers Mutuals man. Or write direct to the home office for it.

Write on your business letterhead, and ask also for a copy of "A Dictionary of Insurance Terms," a copyrighted book which you can secure only from Employers Mutuals of Wausau.

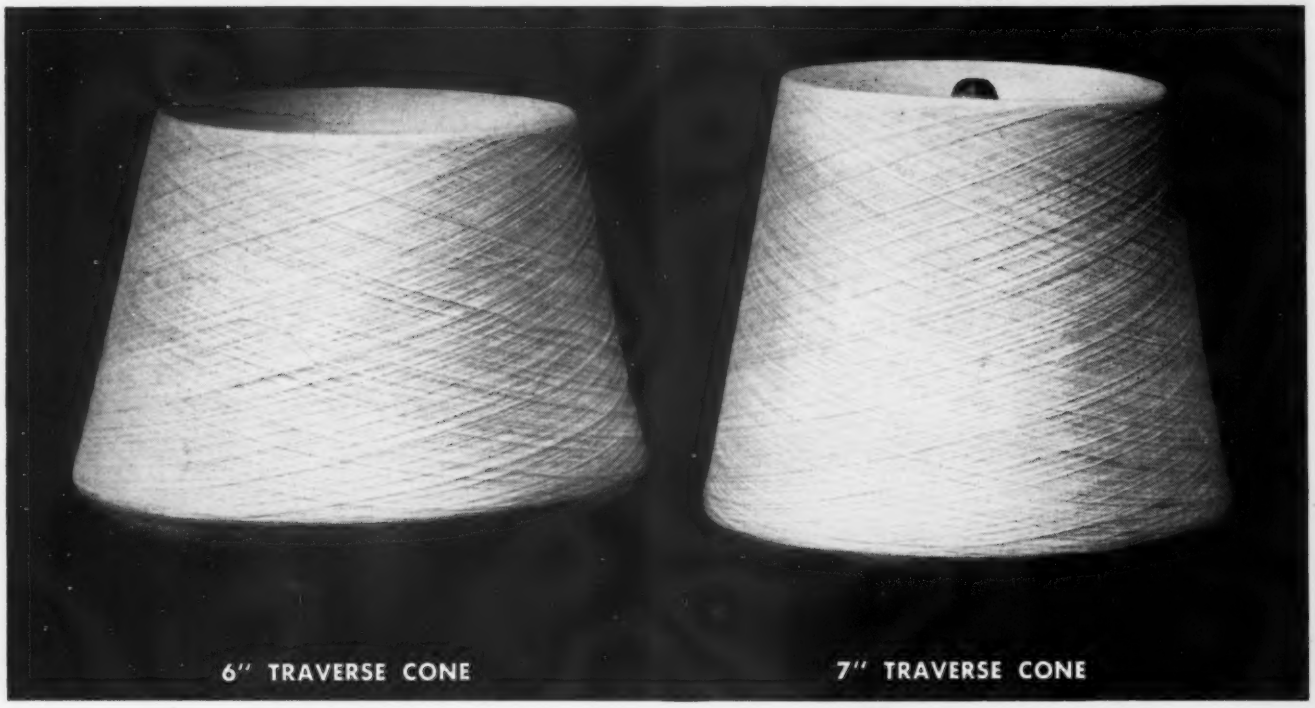


EMPLOYERS MUTUALS OF WAUSAU ... make insurance understandable

EMPLOYERS MUTUALS OF WAUSAU

EMPLOYERS MUTUAL LIABILITY INSURANCE COMPANY OF WISCONSIN
EMPLOYERS MUTUAL FIRE INSURANCE COMPANY
HOME OFFICE: WAUSAU, WISCONSIN
Offices in Principal Cities—Consult Your Telephone Directory

MORE YARN
LESS DOFFING



With 7" Traverse Cones on Foster Model 102

More yarn and less doffs per day mean increased production. When you wind 7" traverse cones on Foster Model 102 you get 10% more yarn than on 6" traverse cones with the further benefits of winding by Foster.

The Foster Model 102 winds twice as much yarn in a given time as obsolete models and reduces operating costs as much as 1/3. It provides all the famous Foster flexibility features, too; that is, it can be equipped to wind tubes, knitting cones, dye packages or warping cones, 6" or 7" traverse. It can also be adjusted to wind any taper and any angle of wind from 9° to 18°.

Further achievements of the Foster 102 that mean better quality production at lower costs include:

1 Cone holder which swings out at convenient height, permitting quick easy doffing.

2 Empty bobbin conveyor *below* bobbin pins, which discharges into *standard* sized truck No handling of bobbin boxes. Double conveyor is furnished when different bobbins are used on different sides of the machine.

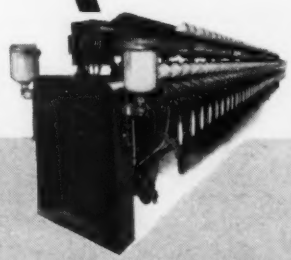
3 Several types of self threading tension and slub catching attachments.

4 Can also be equipped with conditioning attachment.

FOSTER MACHINE CO.

WESTFIELD, MASSACHUSETTS, U. S. A.

SOUTHERN OFFICE: JOHNSTON BUILDING, CHARLOTTE, N. C.
CANADIAN REPRESENTATIVE: ROSS-WHITEHEAD & CO., LTD.,
UNIVERSITY TOWER BUILDING, 660 STE. CATHERINE STREET WEST, MONTREAL, QUEBEC
EUROPEAN REPRESENTATIVE: MUSCHAMP TAYLOR, LTD., MANCHESTER, ENGLAND



SEND FOR BULLETIN A-95

FOSTER MODEL 102

FOR WINDING COTTON, MERCERIZED, WOOL, WORSTED, MERINO, SPUN SILK, OR SPUN RAYON YARNS

know your NEEDLES FOR UPHOLSTERY AND DRAPERY FABRICS

YOU CAN OBTAIN needles for the production of upholstery and drapery fabrics, such as those shown below . . . or any *other* types of needles you require, from *one* source—the Torrington line of more than 10,000 different types, styles and sizes.

And equally important, is that each individual Torrington Needle is machine-made and machine-controlled to have exceptional fineness of temper, smoothness of finish and uniformity of dimensions. From every point of view, it pays to make TORRINGTON *your* headquarters for needles.

THE TORRINGTON COMPANY

Torrington, Conn., U. S. A. • Established 1866

Branches: New York • Philadelphia • Chicago • Greensboro, N. C. Boston • St. Louis • Toronto, Canada • *Pacific Coast Representative:* E. G. Paules, 1762 West Vernon Avenue, Los Angeles 37, Calif.

There's a **TORRINGTON** **LATCH NEEDLE** *for every type of Knitting!*

The "Full Jeweled" 7½ hp Mercury "Rocket Deluxe" outboard motor, manufactured by Kiekhaefer Corporation, Cedarburg, Wisconsin.

Needle Bearings step up performance . . .

of 2-cycle engines by providing greater mechanical efficiency, longer engine life and reduced maintenance. These outstanding features in turn build sales and win new friends

For Mercury outboard motors . . .

made by the Kiekhaefer Corporation, Cedarburg, Wis. Torrington Needle Bearings in the wrist pins, connecting rods and crankshaft mains of the power head and on the drive shaft and propeller shaft have conclusively demonstrated the advantages of anti-friction operation in compact, high-speed 2-cycle engines.

Your product's performance and its sales may also benefit from the advantages of Needle Bearings—compact design, high capacity, low coefficient of friction and efficient lubrication. Write for further information.

THE TORRINGTON COMPANY

TORRINGTON, CONN. SOUTH BEND 21, IND.

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TORRINGTON BEARINGS

• NEEDLE • SPHERICAL ROLLER • STRAIGHT ROLLER • TAPERED ROLLER • BALL •

Designers put this project on an Economical Permanent Footing with

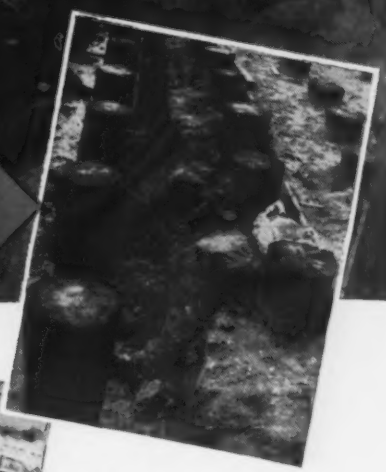
KOPPERS
PRESSURE-CREOSOTED PILES

A common problem—providing a firm, *enduring* foundation in unstable soils—faced the designers of this large industrial building. To solve it, they chose a pile material whose permanence and economy have been conclusively demonstrated in thousands of applications—pressure-creosoted wood.

Koppers Pressure-creosoted piles were driven in the wall trench, and under the floor area. These multiple supports eliminate settling hazards. The treatment gives enduring protection against decay, permitting cut-offs above the water table to be safely made. It also fortifies the piles against insect attack.

The *permanence* of pressure-creosoted piles is demonstrated by the old buildings founded on them . . . and present-day *economy and effectiveness* are indicated by the many modern buildings that use this proven method of overcoming soil handicaps. Koppers Pressure-creosoted piles permit economical development of areas where water tables are below pile cut-offs. They provide adequate bearing value in constructing foundations for heavy bridges or machinery. And they are an accepted means of equalizing support when part of the building is over filled or soft ground.

Koppers is equipped to treat piles up to 125 feet in length, and the delivery situation is excellent. If you have a foundation problem, get in touch with Koppers.



Piles in trench will be capped by wall; others by floor slab.

Reinforcing rods for floor slab. Piles can be seen below.

Floor partially poured. Lower reinforcing is covered.

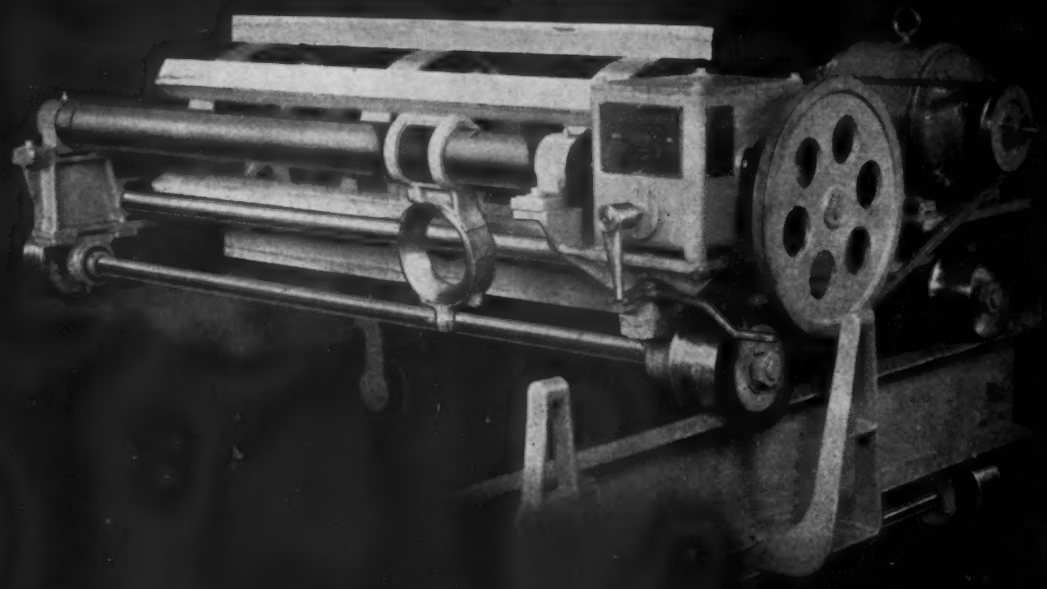
KOPPERS PRESSURE-TREATED WOOD

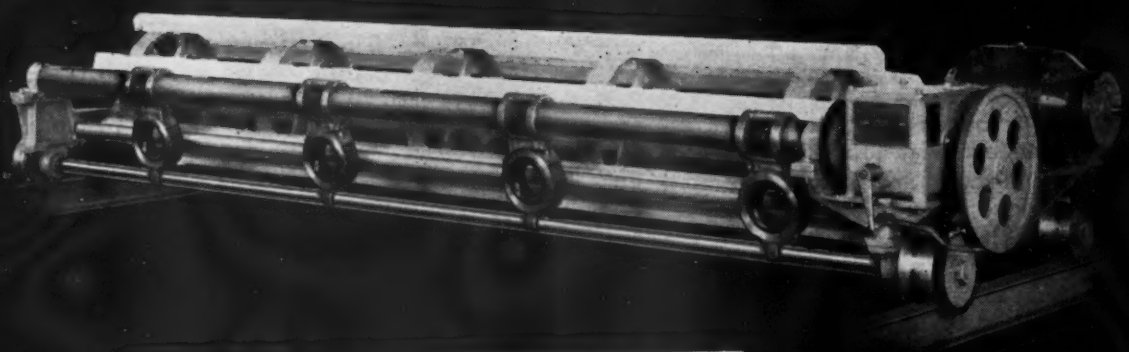
KOPPERS COMPANY, INC.

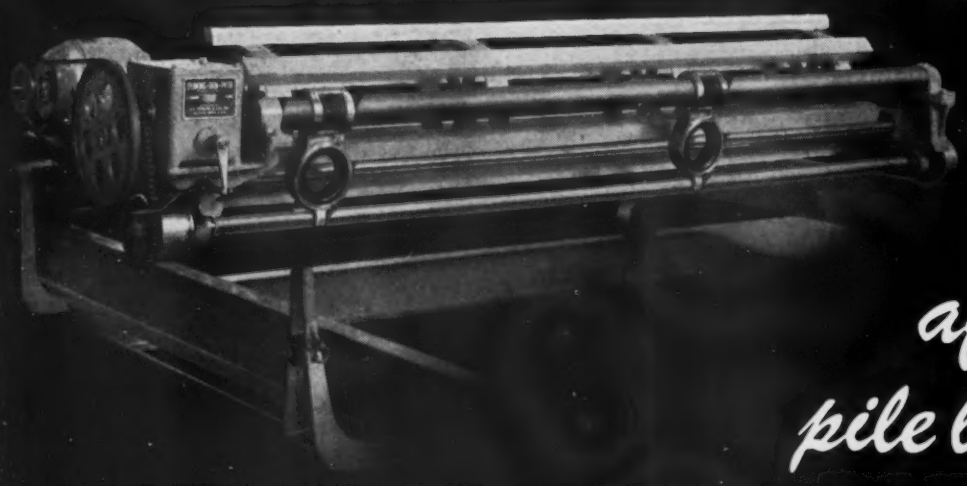
PITTSBURGH 19, PENNSYLVANIA

PERKINS AUTOMATIC BIN PILERS

PATENTED







You cannot afford to pile by hand

B. F. PERKINS & SON, INC.

ENGINEERS AND MANUFACTURERS

HOLYOKE • • • MASSACHUSETTS

SAVE THOSE BEARINGS
...Keep Machines on the Job

Lubricate with the
LINCOLN
Electric
LUBRIGUN*
(PORTABLE)

MODEL 244

- ★ STREAMLINED STYLING
- ★ UNIVERSAL MOTOR A. C. or D. C.
- ★ 30-LB. CAPACITY CONTAINER
- ★ FULL LUBRICANT PRESSURE INSTANTLY AVAILABLE
- ★ 7 FT. HIGH-PRESSURE HOSE ASSEMBLY
- ★ BALANCED EASY-TO-USE CONTROL VALVE
- ★ MAXIMUM PORTABILITY
- ★ 12 FT. ELECTRIC PLUG-IN CORD
- ★ FINISHED IN RED BAKED ENAMEL with NICKEL TRIM

FAST...EASY...POSITIVE LUBRICATION

This Compact, Portable, High-Pressure Grease Gun can be rolled right up to the machine to be lubricated. It saves a lot of time and does a fast, thorough lubrication job. Equipped with a positive displacement pump, powered by a standard make ¼ h. p. universal motor for 110/115 volts, A. C. or D. C., the Lincoln Electric Lubrigun delivers lubricant under high pressure from the large, 30-lb. capacity container. Save Bearings . . . Save manhours . . . Keep Machines on the job with this outstanding High-Pressure Grease Gun.

ASK YOUR *Wholesaler,* or Write Us

Your wholesaler will gladly show you this gun and give you complete information. If there is no Lincoln Wholesaler near you, write us.

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LINCOLN ENGINEERING COMPANY

Pioneer Builders of Engineered Lubricating Equipment

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SAINT LOUIS
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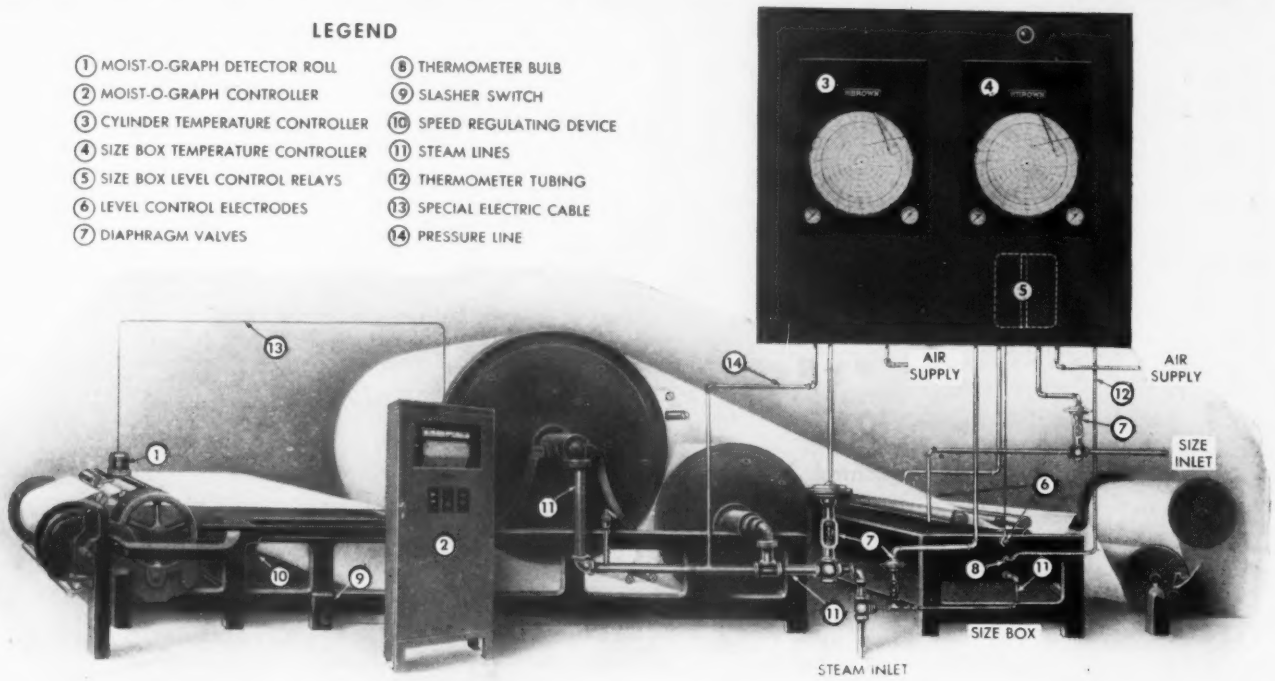
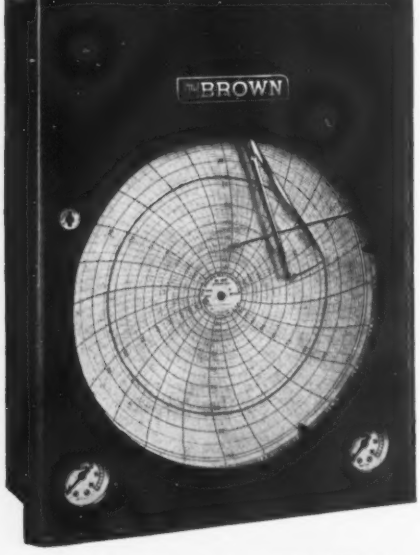
Complete Slasher Control

LEGEND

1. MOIST-O-GRAPH DETECTOR ROLL
2. MOIST-O-GRAPH CONTROLLER
3. CYLINDER TEMPERATURE CONTROLLER
4. SIZE BOX TEMPERATURE CONTROLLER
5. SIZE BOX LEVEL CONTROL RELAYS
6. LEVEL CONTROL ELECTRODES
7. DIAPHRAGM VALVES
8. THERMOMETER BULB
9. SLASHER SWITCH
10. SPEED REGULATING DEVICE
11. STEAM LINES
12. THERMOMETER TUBING
13. SPECIAL ELECTRIC CABLE
14. PRESSURE LINE





SIZE BOX and CYLINDER TEMPERATURE CONTROLLER

INSTALLED on more than 400 cotton and rayon slashers, the Brown Moist-O-Graph Slasher Control System has increased production in the weave room and quickly repaid the investment many times over.

The Brown complete Slasher Control System coordinates control of size box temperature and level with cylinder temperature and speed. The slasher changes its character from that of a mere dryer to a *warp conditioner*.

The Brown Moist-O-Graph Controller pioneered a forward movement in textile plant efficiency. It eliminates mildew—saves steam—prevents damage to fibres—eliminates broken ends in weaving—shedding in the loom, thereby increasing weave room production.

The Moist-O-Graph Control System operates on an electronic principle measuring the moisture content of the slashed yarn by its electrical resistance using a detector roll (1) mounted above yarn and resting on back press roll. The measurement is electrically transmitted to the Moist-O-Graph Recording Controller (2) which simultaneously indicates, records % moisture content and automatically controls slasher speed.

BROWN MOIST-O-GRAPH

FOR COTTON AND RAYON SLASHERS

Steps Up Production

The desired % regain is set by adjusting a visible index on the Moist-O-Graph scale.

Push-button control stations mounted in cabinet door permit operators to modify slasher speeds when changing sets or when, for any reason, it may be desired to operate slasher at "creeping" speeds.

CYLINDER TEMPERATURE CONTROL

Uniform cylinder temperature control is maintained by Brown Recording Temperature Air-Operated Controller (3) which actuates diaphragm valve (7) regulating steam flow to cylinder.

SIZE BOX CONTROL

Correct temperature of sizing solution is maintained automatically by Recording Air-Operated Control Thermometer (4). The bulb (8) is immersed in size solution and the Recording Air-Operated Temperature Controller actuates diaphragm valve (7), governing the heat input to size box.

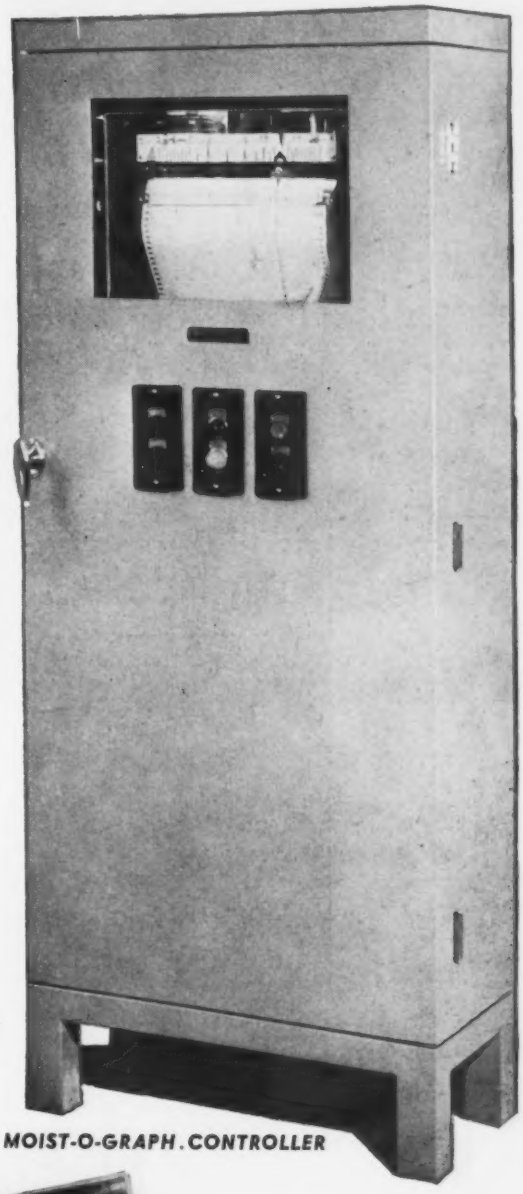
Size Box Level Control is the logical means of insuring uniform immersion of the yarn in sizing solution. Two electrode assemblies (6), maintain the size level with minimum differential. "Foaming" or "caking" of size solution or change in atmospheric conditions do not affect sensitivity or accuracy of this unusual system. The size does not vary more than one-quarter inch assuring correct saturation and uniform coating of fibers. Control relays (5) mounted on rear of panel board actuate diaphragm valve (7) on size solution inlet.

Brown engineers at Atlanta, Boston and Charlotte are as near as your telephone. Call them or write

The Brown Instrument Co., 4509 Wayne Ave., Philadelphia 44, Pa.

Division of Minneapolis-Honeywell Regulator Co.

SUBSIDIARY COMPANIES IN TORONTO . MEXICO CITY . LONDON . STOCKHOLM . AMSTERDAM . BRUSSELS



MOIST-O-GRAPH CONTROLLER

SEND FOR YOUR FREE COPY

This *new* informative 32-page catalog contains drawings, photographs and descriptions of many textile processes complete with instrumentation. Every textile mill executive will want to have a copy. Send for Catalog 9305 today.

SLASHER CONTROL SYSTEM

OVER 400 INSTALLED

worsted textile machinery

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Modern Machinery gives highest efficiency

WASHING, DRYING, CARDING, COMBING, DRAWING & SPINNING MACHINERY—ENGLISH AND CONTINENTAL SYSTEMS

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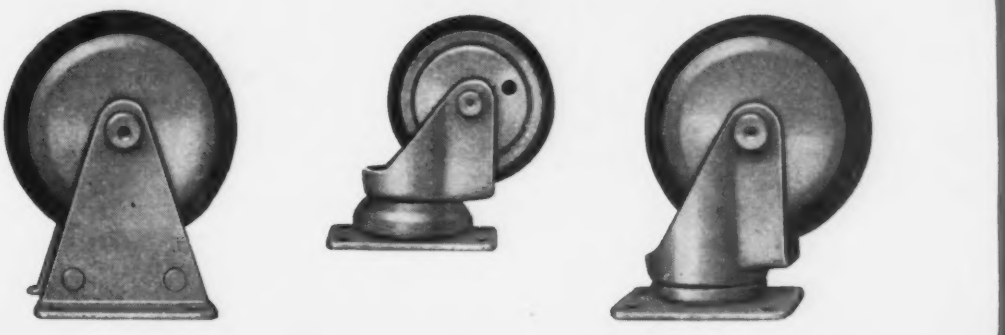

IT WILL PAY YOU—

to check the casters and wheels on your equipment

You may find that the use of obsolete equipment is reducing efficiency and profits in your mill.

Where your rolling equipment is found wanting, replace with COLSON casters—the quality line that is known throughout the textile industry for service and durability.

COLSON can supply any size or type of caster or wheel—all built to "take it" in textile mills. They roll easily over all floors, swivel freely, and are rust-resistant. A wide range of models can be equipped with thread guards.

The COLSON Corporation also manufactures many types of materials handling equipment—a complete line of hand trucks, platform trucks, box trucks, drum and barrel trucks, and special devices.

When you have a caster or materials handling problem—write us.

Colson

THE COLSON CORPORATION

ELYRIA, OHIO

CASTERS • INDUSTRIAL TRUCKS AND PLATFORMS • LIFT JACK SYSTEMS • BICYCLES • CHILDREN'S VEHICLES
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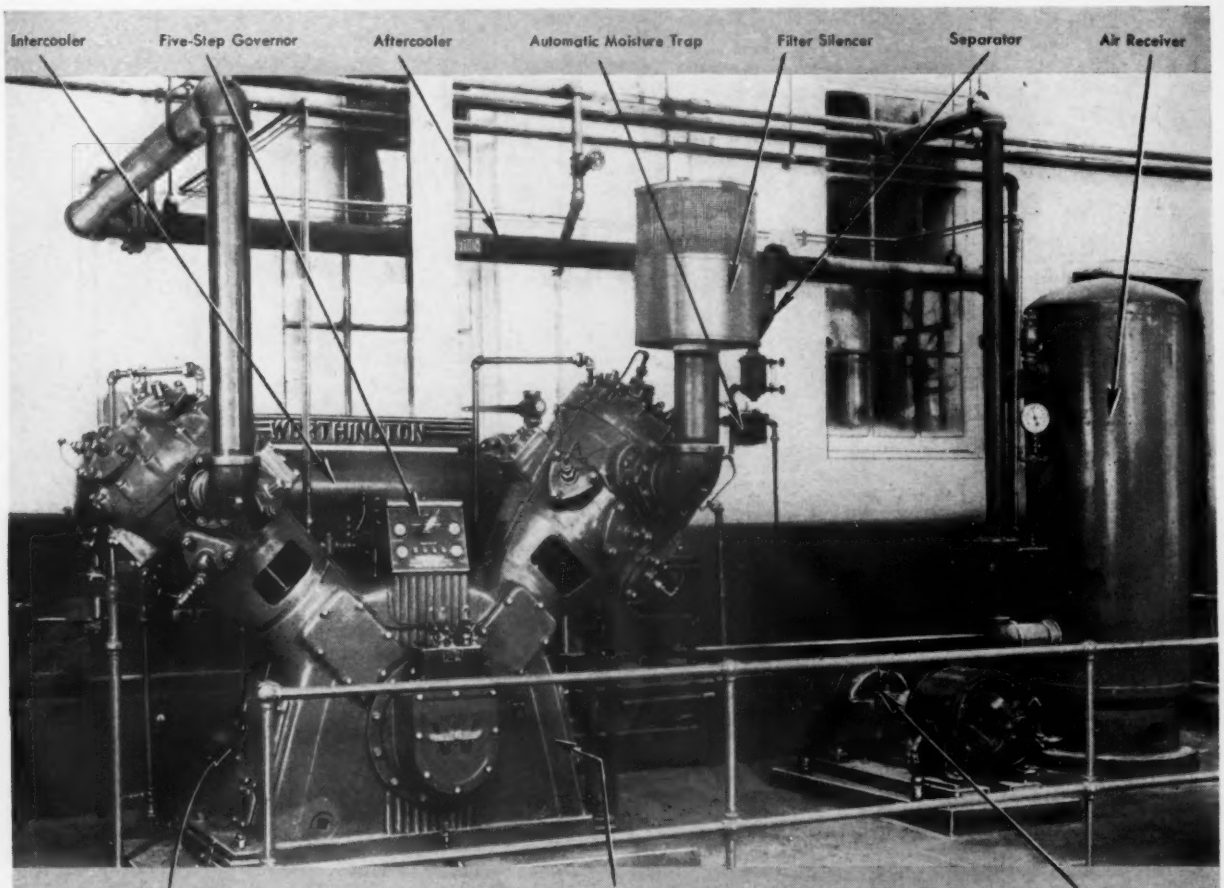
WORTHINGTON ALL THE WAY!

A Modern, Efficient Compressed Air Plant...Engineered Entirely By Worthington



Here's every element of an up-to-date compressed air plant in surprisingly little space! Note, too, the Worthington YC Compressor's small, inexpensive foundation. Then remember that the YC needs no alignment or erecting engineer and you'll realize you're looking at a big reduction in installation costs.

Plus HIDDEN Advantages Like These:

Power factor improvement from the synchronous motor and quick-acting, 5-step governor . . . completely automatic control for the entire system, as in the largest compressed air plants . . . advanced YC design that assures a longer-lived, cooler and smoother running compressor, with maintenance and operating expenses at their lowest.

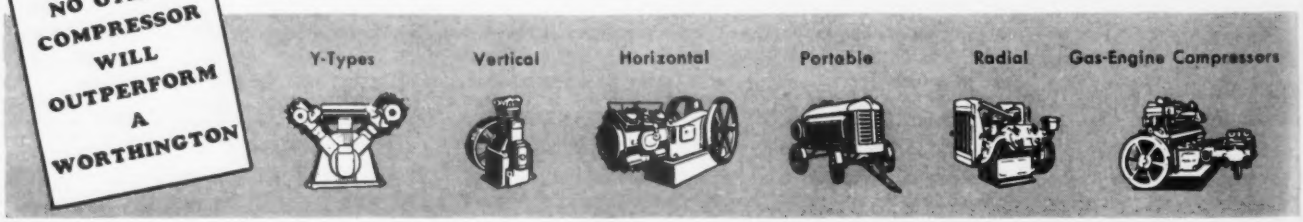
Write for further facts that prove *there's more worth in Worthington.* Bulletin L-667-B1A tells the complete story of how YC Compressors can cut your air costs. *Worthington Pump and Machinery Corporation, Compressor Division, Buffalo, New York.*

K7-16

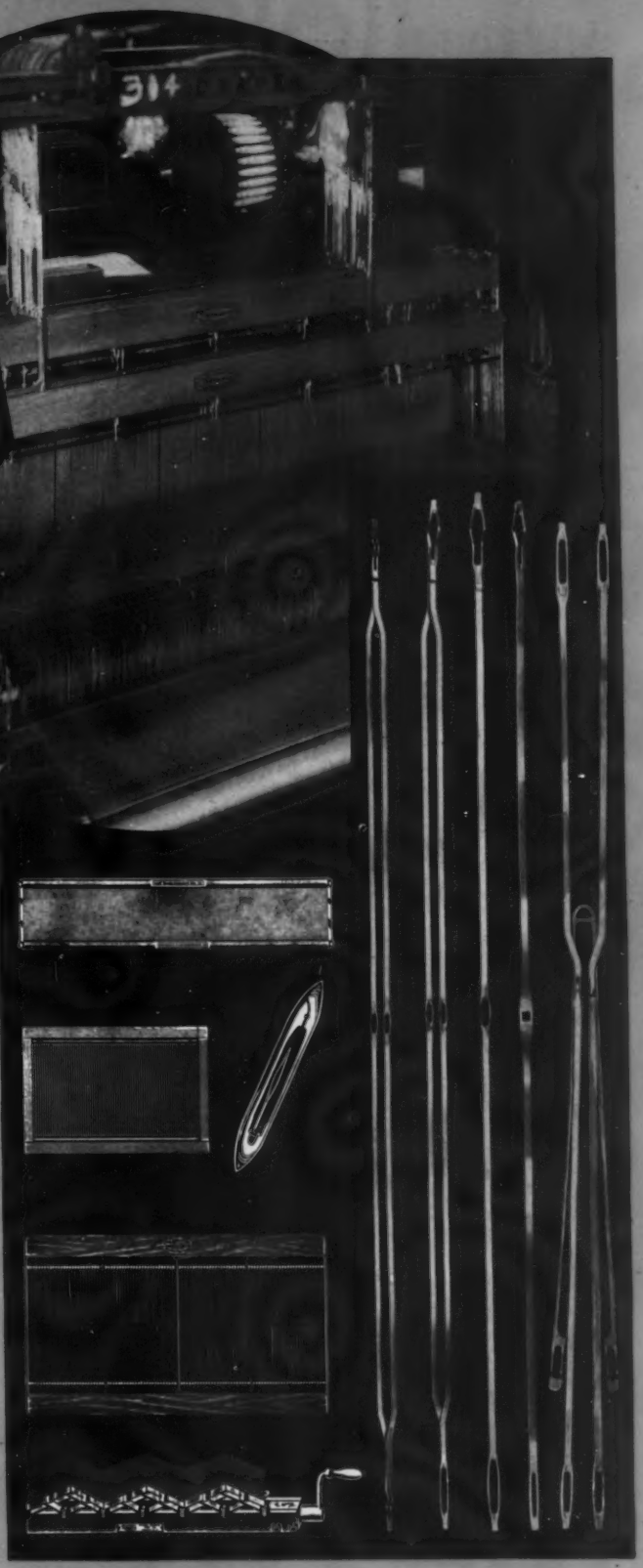
WORTHINGTON

NO OTHER COMPRESSOR WILL OUTPERFORM A WORTHINGTON

*Reg. U. S. Pat. Off.



A Loom Is No Better Than Its Harness



WHETHER your looms are old or the most modern, their ultimate capacity will never be achieved if you equip them with inferior harness equipment.

It is at this vital stage of production that the quality and quantity of the weave is determined—and with it the amount of profit it will net you.

Do not try to save a few pennies per frame on the first cost, but look at the ultimate result in the amount of money you can make over a period of time with real honest equipment built for durability and only embodied in Ste-Hed-Co Loom Harness.

When in need of loom harness equipment, it will pay you to remember that—

There is None so Durable
So Efficient • So Economical
as

QUALITY LOOM HARNESS EQUIPMENT

Ste-Hed-Co

Quality Loom Harness Equipment

Experience-built • Top-Notch Production

STEEL HEDDLE MFG. CO.

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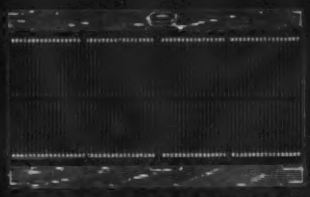
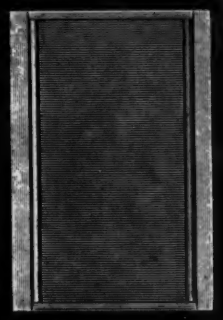

UNIVERSAL DOUBLE IRON END
Loom Frames

Tempered and Polished Wire Cloth Heddles

Tempered and Polished Steel Pile Gauges

Pitch Band Loom Reeds
Custom Made to Suit Requirements

All-Metal Loom Reeds

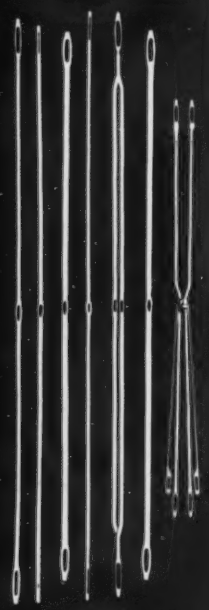

Selvage Harness

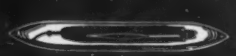
No. 90 Lock Hook Balted Type

No. 75 Lock Hook Screw Type

Creel Tension Weights

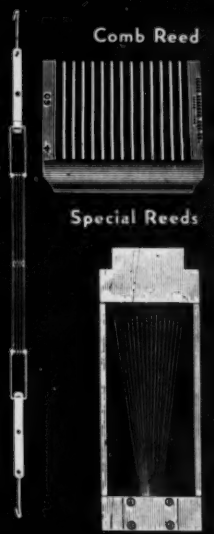
Flat Steel Heddles
For Every Woven Material

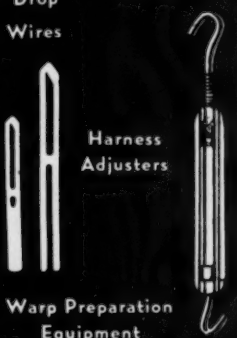

Southern Tempered Shuttles



Comb Reed

Special Reeds


Drop Wires


Harness Adjusters

Warp Preparation Equipment

WHY IT IS TO YOUR *Advantage*

To Specify • Demand • Buy and Accept only

QUALITY LOOM HARNESS EQUIPMENT

Ste-Hed-Co

LOOM HARNESS EQUIPMENT

Because

Your reputation and earning power depends upon either the quality of the weaving you produce, or the quantity you turn out.

The maximum in both are assured by the use of

STE-HED-CO LOOM HARNESS EQUIPMENT

You have the greatest selection of

FLAT STEEL HEDDLES (Stainless and High Carbon Steel)
LOOM HARNESS FRAMES (All Types and Sizes)
LOOM REEDS (All Metal and Pitch Band)
WARP PREPARATION EQUIPMENT
SOUTHERN SHUTTLES (Dogwood and Persimmon)

There is no size, shape, or form of Quality Loom Harness Equipment which we cannot supply.

You have real experience and research to call upon for assistance and advice —

Being pioneers, we have a large research, engineering, and designing staff made up of practical textile mill men.

Profit from all this —
You will find it cheaper in the long run

STEEL HEDDLE MFG. CO.

2100 W. ALLEGHENY AVE., PHILADELPHIA 32, PA.

and **SOUTHERN SHUTTLES DIVISION**

621 E. McBEE AVE., GREENVILLE, S. C.

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It increases dye house output . . . makes the going easier . . . and how it lasts!

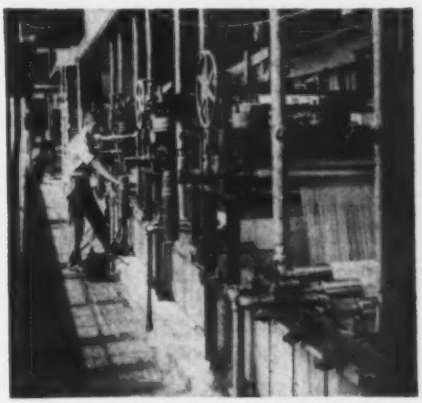
SOME of the pressure comes off mill superintendents, plant engineers and foreman when U·S·S Stainless Steel goes to work in dye house equipment.

Think what it means to be free of rust, staining and bleeding troubles. You can eliminate these causes for cloth spoilage and lost production by using Stainless Steel.

Think what it means to be able to run your machines at high speed, *safely*. To start, stop and reverse *fast*—with the least whip and jar and with minimum vibration. Stainless construction insures this by reducing weight and adding strength.

How would you like to be relieved of most of your maintenance and repair worries? To be able to keep your equipment running at top speed without frequent adjusting or getting out of order. You can, if it's built of Stainless Steel.

Stainless Steel's high resistance to corrosion, its outstanding toughness and durability and the fact that it cleans quickly, easily and thoroughly, not only ensure smoother, more profitable operation but put Stainless Steel in a class by itself when it comes to ultimate economy.



With vats and rollers of U·S·S Stainless Steel this machine has been running corduroys, spun rayons and light-weight cottons with almost no time out for cleaning. The superintendent reports, "perfect service."

Why it pays to specify and use U·S·S Stainless Steel

A *perfected*, service-tested steel, *U·S·S* Stainless is so uniform in composition, in finish and in fabricating qualities that it allows the widest latitude in design and permits the employment of the most advanced manufacturing techniques. The result—equipment that will deliver the utmost in performance.

USS STAINLESS STEEL — UNITED STATES STEEL

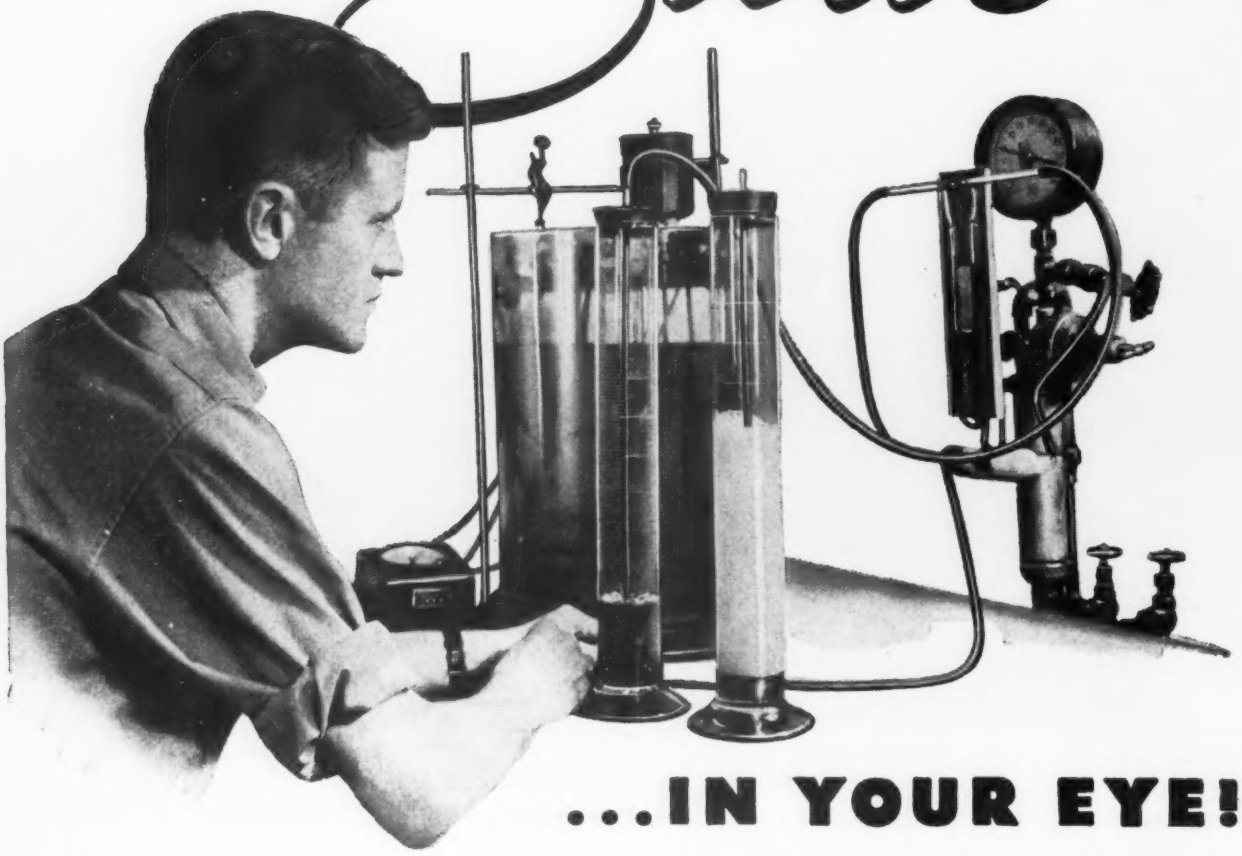
U·S·S STAINLESS STEEL

AMERICAN STEEL & WIRE COMPANY, *Cleveland, Chicago and New York*
CARNEGIE-ILLINOIS STEEL CORPORATION, *Pittsburgh and Chicago*
COLUMBIA STEEL COMPANY, *San Francisco*
NATIONAL TUBE COMPANY, *Pittsburgh*
TENNESSEE COAL, IRON & RAILROAD COMPANY, *Birmingham*
United States Steel Supply Company, Chicago, *Warehouse Distributors*
United States Steel Export Company, New York

7-338

UNITED STATES STEEL

HERE'S *Suds* ...IN YOUR EYE!



The suds very much in your eye as you look at the photograph above is lubricating oil which foams badly and, if used in valuable equipment, constitutes a hazard to positive lubrication, which can increase maintenance costs.

At Sinclair Laboratories, skilled technicians, like the one shown above, study and test lubricating oils constantly for foaming characteristics. Through research in the study of additives, Sinclair provides anti-foam characteristics and assures positive lubricating film plus maximum heat dissipation for protection against wear and failure.

Through such painstaking research, Sinclair maintains production of lubricants of consistent high quality. Sinclair Laboratories and outstanding research are behind the dependable performance of all Sinclair Lubricants for Industry.

Sinclair Textile Lubricants
FOR MINIMUM FRICTION—
MINIMUM POWER CONSUMPTION

LILY WHITE OILS
For Spindles

NO-DRIP LUBRICANTS
For Coulier Motion
Rocker Arms, Gear and Camshaft Bearings,
and Half-speed Shock Absorbers

RUBILENE
For Air Compressor and Vacuum Pumps

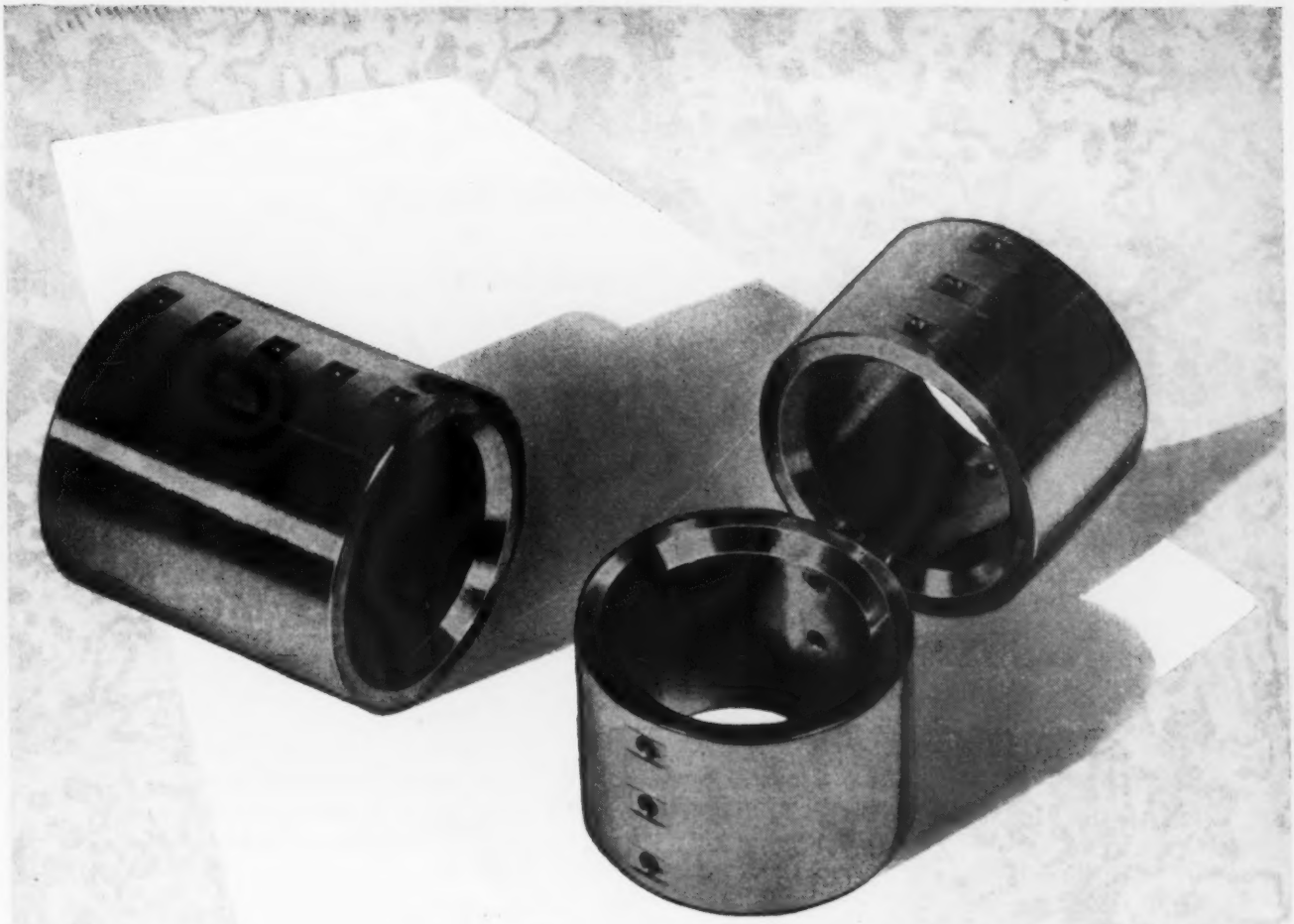
BEARING GREASE AF
For Anti-Friction Bearings

SINCLAIR REFINING COMPANY • 630 FIFTH AVENUE, NEW YORK 20, N. Y.

SINCLAIR

Lubricants for Industry

FINEST CRUDES + EXPERT RESEARCH and MANUFACTURING CONTROL = OUTSTANDING PERFORMANCE



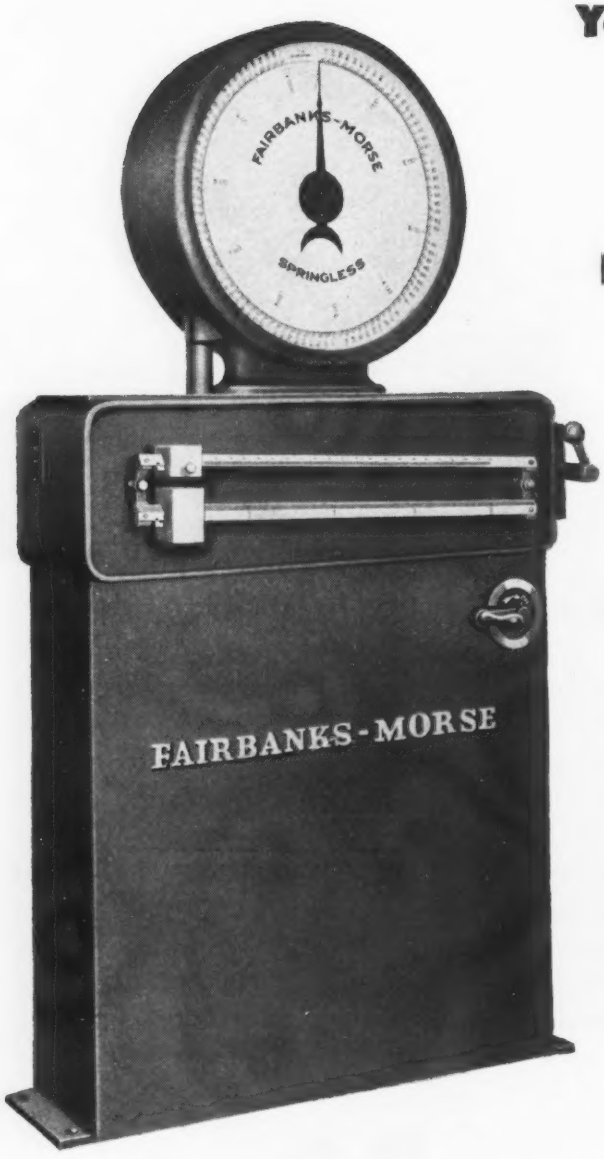
During the war 70% of Bunting output was Precision Bearings, mostly for aircraft engines. These facilities are producing, today, the exceptionally fine bearings needed for the precision jobs of Post-War Industry. The Bunting Brass & Bronze Company, Toledo 9, Ohio. Branches in principal cities.

Bunting

BRONZE BEARINGS ★ BUSHINGS ★ PRECISION BRONZE BARS

72

Accurate Today and for Years to Come



FAIRBANKS-MORSE SCALES

It is not remarkable that Fairbanks-Morse Scales give enduringly accurate weighing service when you realize:

. . . that only materials of highest quality go into their manufacture —from their sturdy frames to their most minute working parts.

. . . that only skilled workmen are used to assemble them.

. . . that constant research is going on to make these scales even finer.

. . . that they have a heritage of 117 years of precision scale engineering.

Fairbanks-Morse Scales will serve you with accuracy—today and for years to come. Fairbanks, Morse & Co., Chicago 5, Illinois.

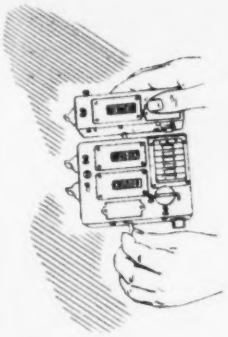
Fairbanks-Morse

A name worth remembering

Diesel Locomotives
Diesel Engines
Generators • Motors
Pumps • Scales
Magnetos • Stokers
Railroad Motor Cars
and Standpipes
Farm Equipment

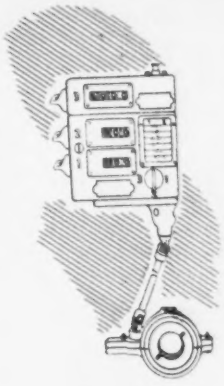
You get ALL these Vantage Points

when you get VEEDER-ROOT 2-3 PICK COUNTERS in your mill!



QUICK CONVERTIBILITY
RIGHT IN YOUR OWN MILL

Your own mechanics can quickly convert your 2-Shift 2-3 Pick Counters into 3-Shift Pick Counters . . . simply by adding the 3rd Counting Unit. This protects you against counter-obsolescence.



COMPLETE INSTALLATION
NO EXTRAS TO BUY

You get everything you need —every last part, pin and bolt —when you buy Veeder-Root 2-3 Pick, Hank, Lineal or Knitting Counters. Nothing to buy or make.

YALE LOCK
ON THE FRONT DOOR

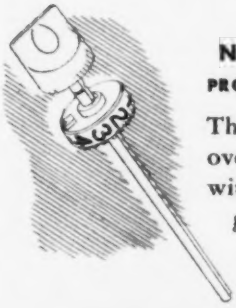
Makes certain that *only* the authorized key-holder can clear the readings by resetting. Protects accuracy of payroll and production records.

FIELD ENGINEERS
AT YOUR SERVICE

All over the country, Veeder-Root engineers are located in important textile centers. They will respond promptly to your request for aid in counting problems. Get in touch with the nearest office.

COMPRESSION CLAMPS
CUT INSTALLATION COST

Grip shaft securely, top and bottom . . . save time in fitting worm onto shaft. And these spring-steel clamps also eliminate drilling and weakening of shaft.



NON-OVERTHROW WHEEL
PROTECTS AGAINST OVERTHROWING

This wheel stubbornly resists overthrowing when disengaged with shaft spline. When engaged with shaft spline, it readily resets to zero.

ADDED VANTAGE POINTS OF VEEDER-ROOT 2-3 COUNTERS

BOLD VISIBILITY — SPEEDS UP READING TIME

NEW WHEELS — GIVE STRENGTH PLUS LOW WEIGHT

STEEL MOUNTING INSERTS — EXTRA STRENGTH AGAINST LOOM VIBRATION

SMOOTH RESET KNOBS — FOR RAPID RESETTING

ALL METAL PARTS TREATED AGAINST CORROSION — TO WITHSTAND WEAVE-ROOM HUMIDITY

VEEDER-ROOT INCORPORATED

HARTFORD 2, CONNECTICUT • GREENVILLE, S. C.

OFFICES IN: Boston Chicago Cincinnati Cleveland Detroit Los Angeles New York Philadelphia Pittsburgh St. Louis San Francisco Montreal Buenos Aires Montevideo Mexico City. *In Canada:* Veeder-Root of Canada, Ltd., Montreal. *In England:* Veeder-Root Ltd., Dickinson Works, 20 Purley Way, Croydon, Surrey.

Steam . . . water . . . oil . . . or gas
CRANE Supplies all Piping equipment

. . . A good thing to remember for a simplified piping job every time . . . on new or replacement installations. No matter what the fluid or working conditions, see the Crane line first for *all* piping equipment . . . and for dependable quality in every item.

For this water supply system, for example, the Crane Catalog puts everything at your finger tips . . . valves, fittings, pipe, and pipe line accessories. One order to your Crane Branch or Wholesaler covers all your needs. From design to erection to maintenance, your piping job moves fast and smooth . . . with good performance assured . . . because you get this 3-way advantage:

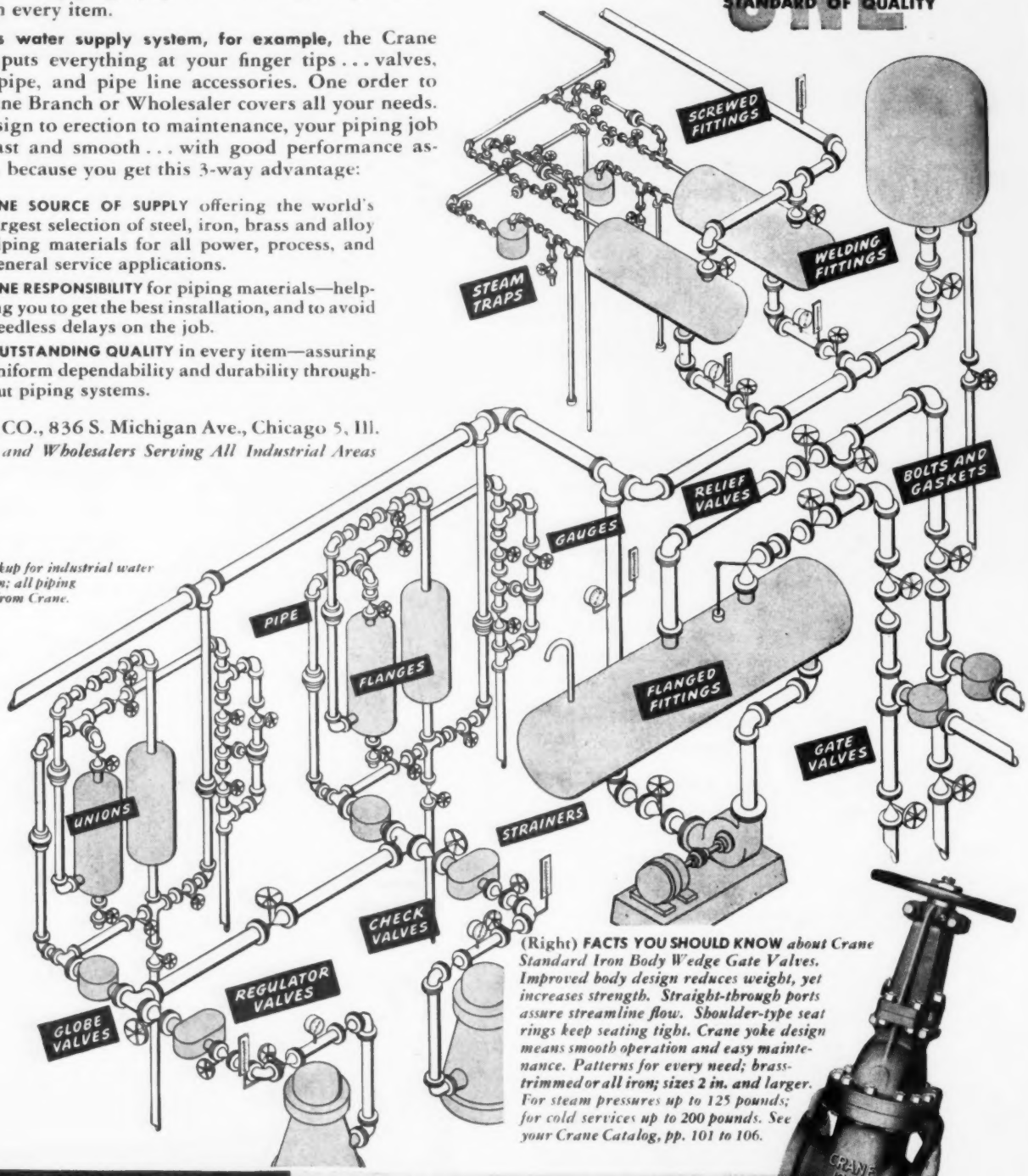
ONE SOURCE OF SUPPLY offering the world's largest selection of steel, iron, brass and alloy piping materials for all power, process, and general service applications.

ONE RESPONSIBILITY for piping materials—helping you to get the best installation, and to avoid needless delays on the job.

OUTSTANDING QUALITY in every item—assuring uniform dependability and durability throughout piping systems.

CRANE CO., 836 S. Michigan Ave., Chicago 5, Ill.
Branches and Wholesalers Serving All Industrial Areas

ONE
SOURCE OF SUPPLY
RESPONSIBILITY
STANDARD OF QUALITY



Typical hookup for industrial water supply system; all piping equipment from Crane.

(Right) **FACTS YOU SHOULD KNOW** *about Crane Standard Iron Body Wedge Gate Valves. Improved body design reduces weight, yet increases strength. Straight-through ports assure streamline flow. Shoulder-type seat rings keep seating tight. Crane yoke design means smooth operation and easy maintenance. Patterns for every need; brass-trimmed or all iron; sizes 2 in. and larger. For steam pressures up to 125 pounds; for cold services up to 200 pounds. See your Crane Catalog, pp. 101 to 106.*

EVERYTHING FROM . . .

VALVES • FITTINGS
PIPE • PLUMBING
AND HEATING

CRANE

FOR EVERY PIPING SYSTEM

Get Your Right Production Speeds FASTER !!!

¼ to ¾ hp
1 to 3 hp
2 to 5 hp
2.8 to 7½ hp
Model A
Ratio 16 to 1; speed range 215–3450 (with 1725 rpm input)
Model C
Ratio 9 to 1; speed range 400–3600 (with 1725 rpm input)
Model D
Ratio 8 to 1; speed range 360–2880 (with 1725 rpm input)
Model E
Ratio 6 to 1; speed range 400–2400 (with 1725 rpm input)

Worthington Allspeed Selectors are providing best production speeds with instant, stepless, precision control on machines where speed adjustments are desirable to: (1) Suit type of material being fabricated; (2) Control flow of material being processed or packaged; (3) Suit operators' abilities; (4) Maintain, smoothly, a constant speed suited to each individual job run. In getting the *right* speed for each requirement, most users report production increases from 50 to 200%!

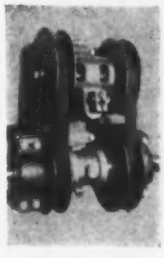
Added Sizes, Bigger Stocks, Serve More Applications

You can now choose a Worthington Allspeed Selector from a wider hp range — ¼ to 7½ — four sizes with the same salient features: accessibility . . . adaptability to any machine, new or old . . . ball bearings throughout . . . rugged construction, typically Worthington. And Worthington's vast production facilities assure prompt deliveries.

Call Your Nearby Worthington Distributor

Get his quick, expert aid in choosing the right size and type of Selector, or write us direct for the Allspeed Selector Bulletin. Read why in variable drives, too, *there's more worth in Worthington. Worthington Pump and Machinery Corporation, Merchandising Division, Harrison, N. J. 36 District Offices throughout the U. S.*

SIMPLE . . . COMPACT TROUBLE-FREE



Tandem-belt design provides smoothest possible operation . . . exclusive, automatic, positive belt-tensioning . . . highest speed ratios in smallest space . . . only drive not requiring dismantling of unit to change belt.

WORTHINGTON

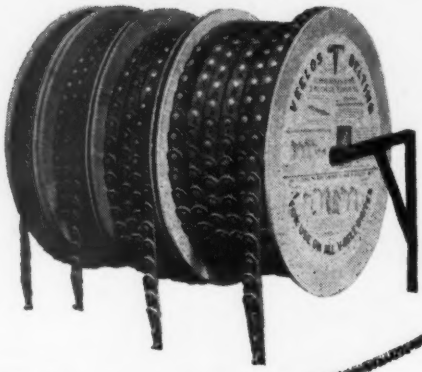
B7-9

PRODUCTS BASED ON MARKET RESEARCH

Centrifugal Pumps | Rotary Pumps | Steam and Power Pumps | Vertical and Horizontal Compressors | Multi-V-Drives | Variable Speed Drives

A size, style and type for every industrial requirement.

Here's all you need to be sure of Every Size you need



WHATEVER length V-belt you may require, it's always on hand when you use Veelos, the link V-belt on reels. From just four reels you can replace up to 316 standard sizes. Need less? Any length belt can be uncoupled from a single reel, quickly coupled endless on the drive.

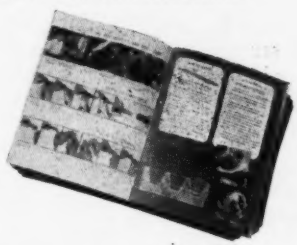
Veelos on reels banishes costly belt inventories. Stocking matched sets for each drive is eliminated. You *profitably* use every bit you buy. There is no belt waste. Time-consuming paper work is greatly reduced. Reels of Veelos hold 100 feet . . . save stockroom space. Veelos is available in all standard widths, fits all standard grooves.

Sales engineers are located in all principal cities; over 300 distributors throughout the country.

MANHEIM MANUFACTURING & BELTING COMPANY
MANHEIM, PENNSYLVANIA

VEELOS
THE LINK
V-BELT
Adjustable to any Length
Adaptable to any Drive

New Veelos Catalog shows you how to get the *right* length V-belt right off the reel. You'll see it uncoupled, made endless, installed (pages 8 and 9). All 14 Veelos advantages are described in detail. Complete engineering data is provided. Also, a dozen pages—packed with photographs—show Veelos at work in a wide variety of industries. *Your free copy sent on request.*



Tested, Proved and Adopted by American Industry

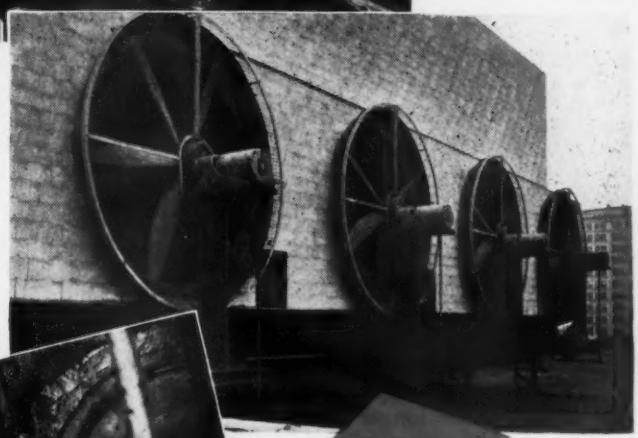
KNOWN AS VEELINK OUTSIDE THE UNITED STATES

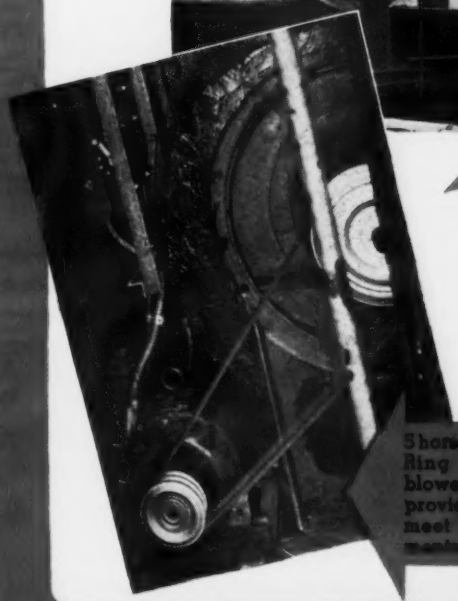
FOR *EVERY* BLOWER APPLICATION

THERE'S A **CENTURY MOTOR** THAT

WILL OPERATE

SMOOTHLY · QUIETLY · DEPENDABLY



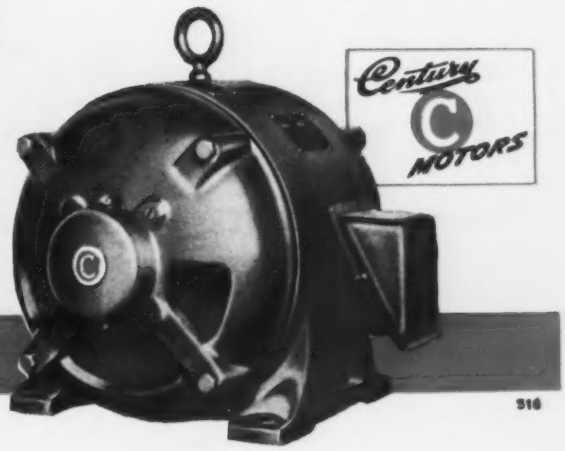

5 horsepower Century Slip Ring motor operates a blower in a large hotel—provides variable speed to meet changing requirements of air conditioning

Century motors' quiet starting and operating and their unusual freedom from electrical and mechanical vibration contribute to comfortable air circulating in the home, commercial buildings or industrial plants.

There's a type of Century motor protection to meet the requirements of any kind of atmospheric condition — whether clean or dirty, hot or cold, whether indoors or outdoors.

Century builds a complete line of electric motors and generators, fractional and integral horsepower, in the popular sizes to meet the requirements of industrial production, processing, commercial and home needs.

Specify Century for all your electric power requirements.



CENTURY ELECTRIC COMPANY

1806 Pine Street, St. Louis 3, Missouri

Offices and Stock Points in Principal Cities

316

In Any V-Belt Only the SIDES Touch the Pulley

The Sides *Do ALL the GRIPPING*

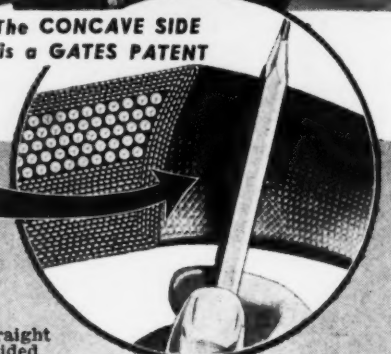
Diagram of V-Belt in Sheave Groove

— Naturally, It's the *SIDES* that GET the WEAR!

The moment you look at a V-belt in its sheave, you see that the *sides* do all the *gripping*—They get *all the wear* against the sheave groove wall. The sides *pick up* the load. They transmit that load to the belt as a whole. And then, once more, the sides—and the sides alone—take hold of the driven pulley and deliver the power to it.

This simple fact explains why you have always noticed that the *sidewall* of the *ordinary* V-Belt is the part that *wears out first.*

★Now See How the *Patented* CONCAVE SIDE *REDUCES Sidewall Wear - Lengthens Belt Life!*



The CONCAVE SIDE is a GATES PATENT

Clearly, since the sidewall is the part that wears out first, anything that prolongs the life of the sidewall will lengthen the life of the belt. The simple diagrams on the right show exactly why the ordinary, straight-sided V-Belt gets excessive wear along the *middle* of the sides. They show also why the Patented Concave Side greatly reduces sidewall wear in Gates Vulco Ropes. That is the simple reason why your Gates Vulco Ropes are giving you so much longer service than any straight-sided V-Belts can possibly give.

Straight Sided V-Belt

Fig. 1

How Straight Sided V-Belt Bulges When Bending Around Its Pulley

Fig. 1-A

You can actually feel the bulging of a straight-sided V-Belt by holding the sides between your finger and thumb and then bending the belt. Naturally, this bulging produces excessive wear along the middle of the sidewall as indicated by arrows.

Fig. 2

Gates V-Belt with Patented Concave Sidewall

Showing How Concave Side of Gates V-Belt Straightens to Make Perfect Fit in Sheave Groove When Belt Is Bending Over Pulley.

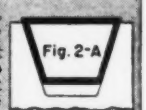


Fig. 2-A

No bulging against the sides of the sheave groove means that sidewall wear is evenly distributed over the full width of the sidewall—and that means much longer life for the belt!

★More Important NOW That Gates SUPER V-Belts are Available

Now that Gates *Specialized* Research has resulted in Super V-Belts capable of carrying much heavier loads—up to 40% *higher horsepower ratings* in some cases—the sidewall of the belt is called upon to do even *more work* in transmitting these heavier loads to the pulley. Naturally, with heavier loading on the sidewall, the life-prolonging Concave Side is more important NOW than ever before!

THE GATES RUBBER COMPANY DENVER, U. S. A.

"World's Largest Maker of V-Belts"

479

GATES VULCO ROPE DRIVES

Engineering Offices and Jobber Stocks IN ALL INDUSTRIAL CENTERS of the U. S. and 71 Foreign Countries

Gates

THE MARK OF SPECIALIZED RESEARCH

WOOL WEB STATIC TROUBLES *ELIMINATED*

An example of how textile static problems are being solved with the Ionotron Static Eliminator*

Static electricity no longer is a problem on the Peralta machines in the card room of F. C. Huyck & Sons' Kenwood Mills, Albany, N. Y.

There used to be plenty of trouble when the wool web came off the first breaker, where it picked up static and wound around the apron. The machines had to be watched constantly, and there were many stoppages.

Then Ionotron Static Eliminators were installed on the machines — at the point where static charges build up. Alpha radiation from the Ionotrons keeps the air ionized in the trouble zone, and the ionized air continuously conducts the charges to ground. Result: no more stoppages due to static!

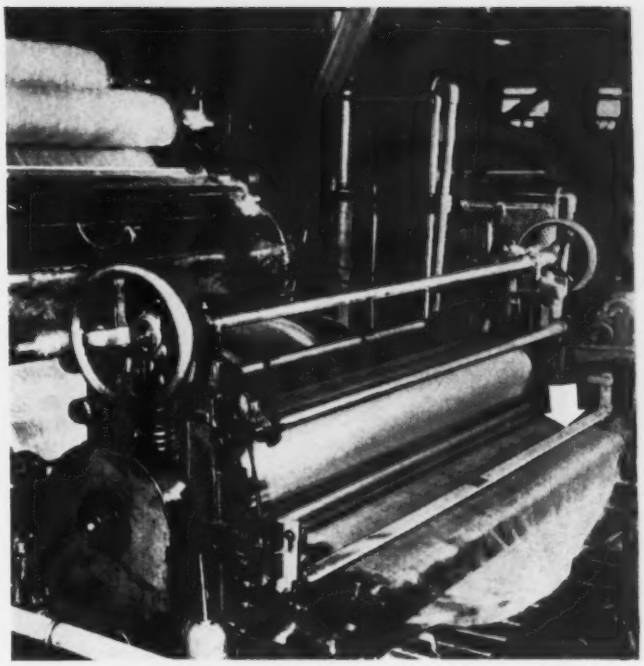
Other textile applications — Developed only recently, the Ionotron Static Eliminator is proving its effectiveness in numerous textile mills. It has not yet been tried on all types of machines, but it promises to be the answer to static problems in many textile operations.

Important production advantages — Because it eliminates bunching, lapping and other difficulties caused by static charges in textile fibers, the Ionotron increases production by reducing the frequency of shutdowns. It also results in more uniform windings. It eliminates static problems in fabric-coating operations. It improves working conditions by permitting a substantial reduction of humidity.

Easy to install, permanently effective — With simple brackets and bolts, Ionotrons of suitable size can be installed on almost any equipment. Their action is continuous and permanent — yet there are no moving parts, no power connection, and no operating cost! There is no contact with fibers or fabric, and atmospheric changes do not alter the Ionotron's efficiency.

For details about employing Ionotron Static Eliminators on wool and worsted machines, write Davis & Furber Machine Co., North Andover, Mass. For information about any other textile application of the Ionotron, send a detailed description of the static problem to *Dept. J5, U. S. Radium Corp., 535 Pearl St., New York 7, N. Y.*

*Trade-mark Reg. U. S. Pat. Off.



Arrow shows location of Ionotron Static Eliminator on one of Peralta machines at Kenwood Mills. Ionotrons, installed on all the Peraltas in the card room, prevent stoppages formerly caused by wool webs picking up static and winding around aprons.

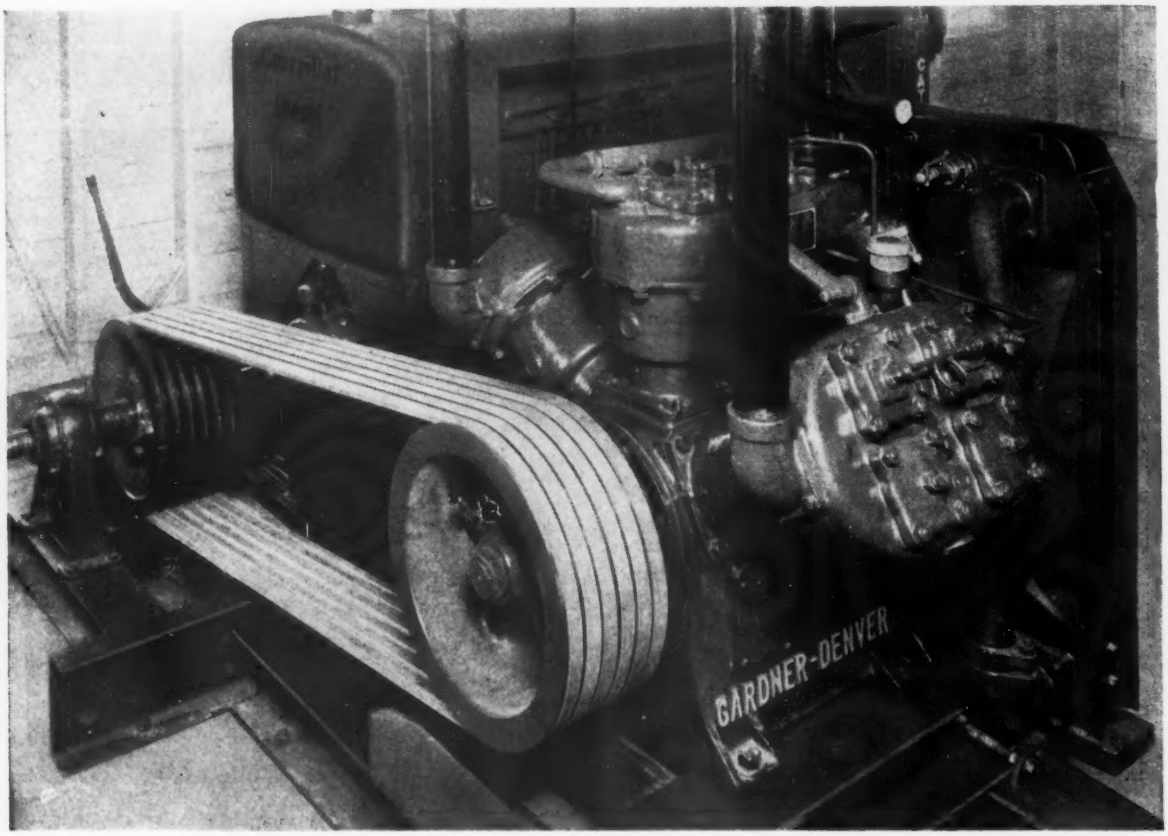
U S RADIUM

IONOTRON

Static

ELIMINATOR

What do careful buyers know about this "WB" Compressor?



It's an open secret among buyers that Gardner-Denver Class "WB" Air Compressors, though compact in size and rated as "small machines," develop efficiencies comparable to those of large two-stage horizontal compressors! In other words, *you get more air output in less space — and at low cost.*

The reason? Class "WB" compressors are a departure from conventional design. The use of two small water-cooled cylinders where one large one is ordinarily used results in lower air temperatures — saving in horsepower — considerably reduced inertia load. Other "WB" features you'll value are:

- ✻ *Combination radiator and air-cooled intercooler permits use where cooling water is scarce or of poor quality.*
- ✻ *Completely water-jacketed cylinders for maximum operating efficiency in any temperature or at any altitude.*
- ✻ *Silent "cushioned" Duo-Plate valves.*
- ✻ *Positive pressure system of lubrication from oil pump.*
- ✻ *Timken tapered roller main bearings.*

ATLANTA, GA.; BIRMINGHAM, ALA.; BOSTON, MASS.; HAZLETON, PA.; KNOXVILLE, TENN.; WASHINGTON, D. C.; NEW YORK, N. Y.; PHILADELPHIA, PA.; PITTSBURGH, PA.

USE COMPRESSED AIR FOR SAFETY CONVENIENCE FLEXIBILITY

GARDNER-DENVER

SINCE 1859

BWH IS IN BUSINESS TO HELP YOU

During the past 69 years, the engineers and technical experts of BWH have made continuous and progressive strides forward in the solution of some of industry's most pressing problems. So great have been these contributions that today the name BWH is synonymous with extra service.

For example, BWH pioneered and perfected many modern industrial processes, such as the notable Rotocure Process of Continuous Vulcanization for belting . . . a development that is fast outmoding old belting-manufacturing methods.

Paralleling these developments in belting are the remarkable forward steps taken in the industrial hose and other heavy mechanical rubber goods fields. These have helped create a more profitable and a highly geared industry.

Our 69 years of experience are at your service. In purchasing from BWH distributors, you have the assurance that only superior products carry the BWH name. That's why it will pay you to look to BWH for dependable ruggedness . . . BWH distributors for dependable service.

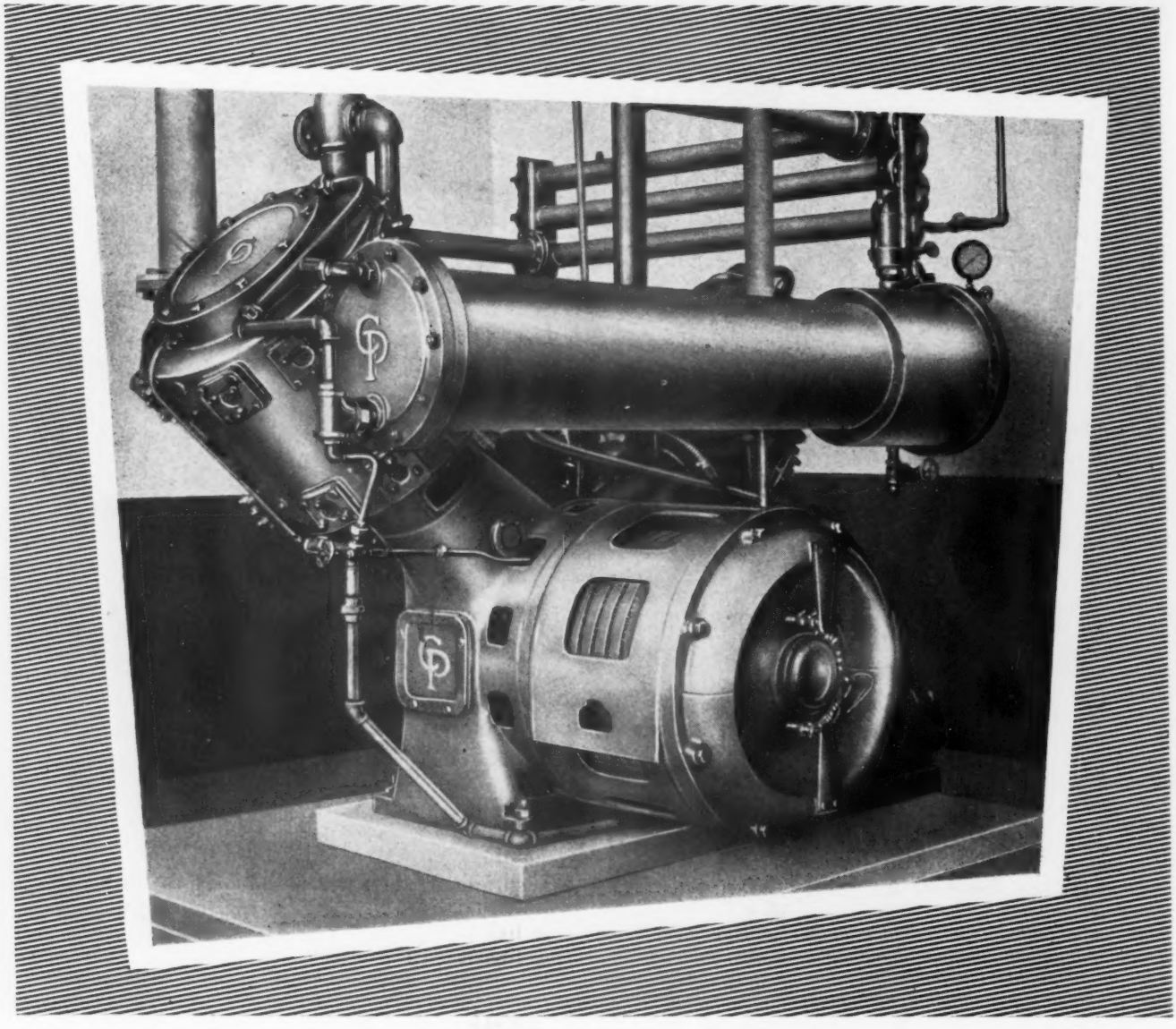
HAVE YOU A JOB WHERE STAMINA COUNTS?

Bring us your toughest problems . . . we're specialists in solving them. Consult your nearby BWH distributor, or write direct.

BOSTON WOVEN HOSE & RUBBER COMPANY

Distributors in All Principal Cities

PLANT: CAMBRIDGE, MASS., U. S. A. • P. O. BOX 1071, BOSTON 3, MASS.



It's easy to install!

TYPE Y COMPRESSOR

Shipped intact as a "package unit," ready for external connections, a CP Type Y Compressor can be set up quickly with minimum expense. It needs only a simple foundation, and requires no special skill to align and install it. Its compact design renders it ideal where floor space is restricted.

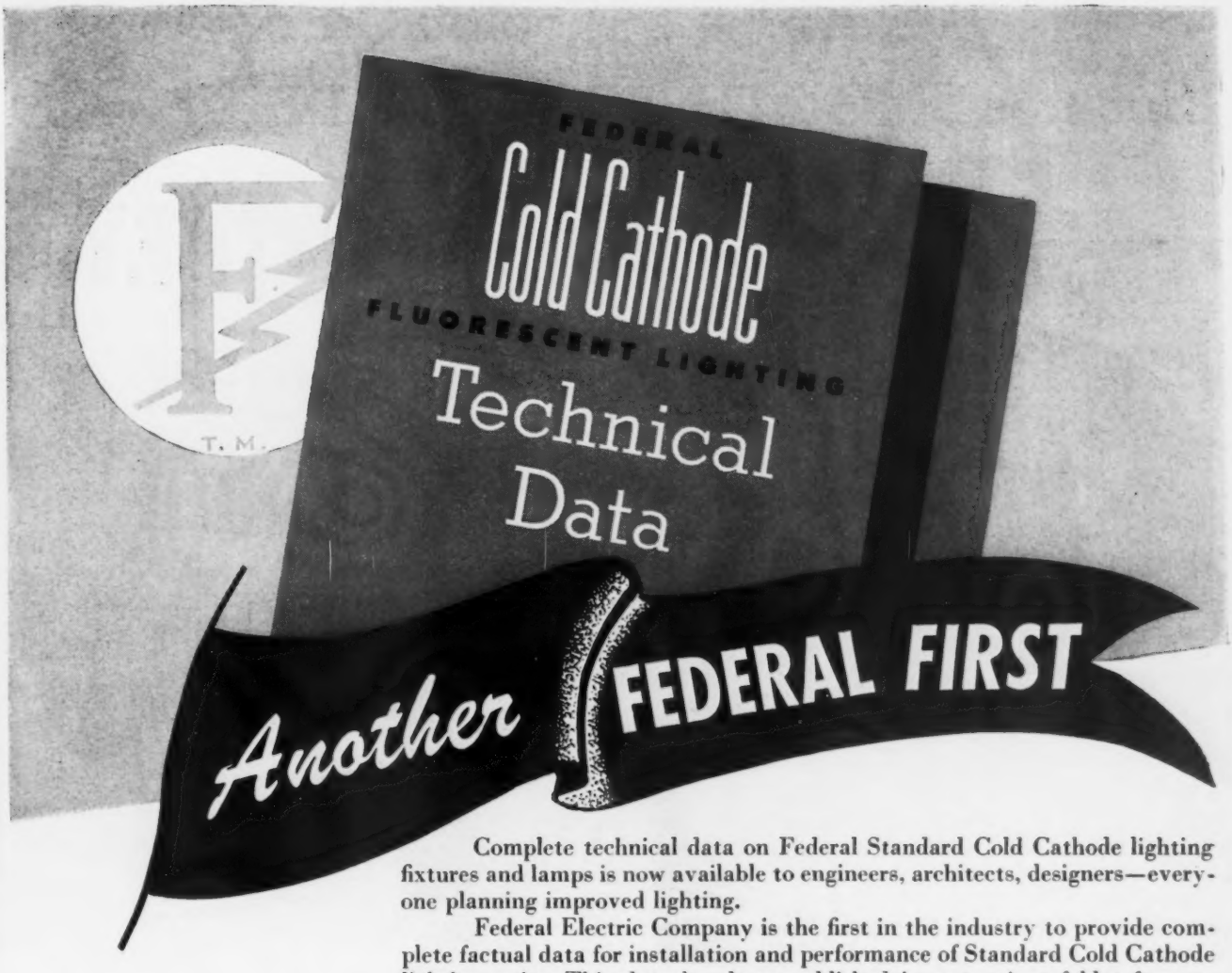
It operates at high efficiency with low maintenance because of such features as large area Simplate valves . . . multi-step capacity regulation . . . effective inter-cooling . . . precision bearings . . . force-feed lubrication.

Available with built-in or direct-coupled motor, or with V-belt drive, in capacities of 500 to 900 c.f.m., at 80 to 125 pounds pressure. Sizes for other pressures also furnished. Write for full information.

CHICAGO PNEUMATIC TOOL COMPANY

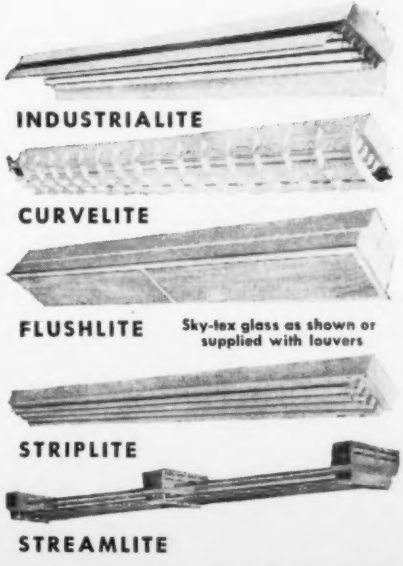
General Offices: 8 East 44th Street, New York 17, N. Y.

PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES
ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES



Complete technical data on Federal Standard Cold Cathode lighting fixtures and lamps is now available to engineers, architects, designers—everyone planning improved lighting.

Federal Electric Company is the first in the industry to provide complete factual data for installation and performance of Standard Cold Cathode lighting units. This data has been published in convenient folder form to assist you in computing lighting installations. The data covers Federal's complete fixture line.



OTHER FEDERAL FIRSTS

FIRST to design completely modern functional fixture units (25 types available).

FIRST to develop automatic lamp processing equipment for manufacture of reliable Cold Cathode lamps.

FIRST to standardize the trouble-free positive contact pin base for Cold Cathod lamps, obsoleting the ferrule-type carried over from the neon sign type of lighting.

FIRST to provide a safe socket—approved by Underwriters for residential use.

FIRST to provide complete engineering service.

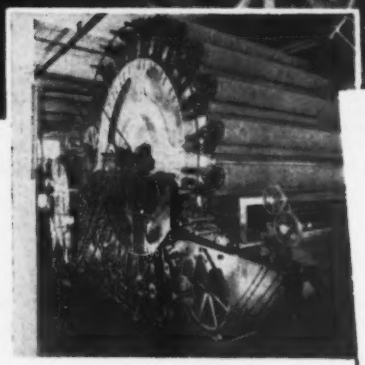
Your **FREE COPY** has been reserved—write today for Federal Cold Cathode Fluorescent Lighting Technical Bulletin 124.

FEDERAL ELECTRIC COMPANY, Inc.

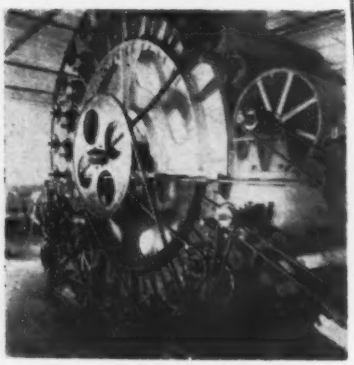
8700 SOUTH STATE STREET · CHICAGO 19, ILLINOIS

New Type Woolen Card Secures SMOOTH, POSITIVE DRIVE with

WHITNEY Roller Chain



Chain driven worker rolls produce smooth carding action.



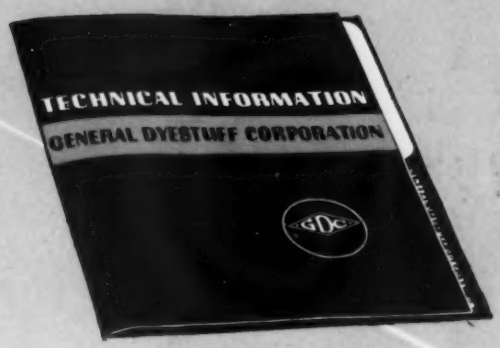
Main cylinder and stripper rolls are chain driven for positive performance

This single cylinder Woolen Card, developed by New England Machine Works of Waterbury, Conn., produces quality roving at a high rate yet requires unusually small floor space, as compared with conventional carding machines. Its many new design features result in more accurate and simplified settings and greater operating efficiency.

Like many progressive textile machinery manufacturers, New England Machine Works specifies Whitney *chain drive* to insure the smooth, positive power transmission required by this machine. Whitney chain, *the all steel drive*, delivers constant full power without slipping or friction loss. Roller chain cushions shock . . . a vital *plus* feature which helps to reduce waste and fibre damage assuring high quality, uniform roving. It gives maximum long-lived service with minimum maintenance.

Regardless of the type of machinery, you will find it pays to *standardize* on Whitney. And remember . . . the best combination for sure, positive drives is Whitney chain plus Whitney cut-tooth sprockets. Write for information.

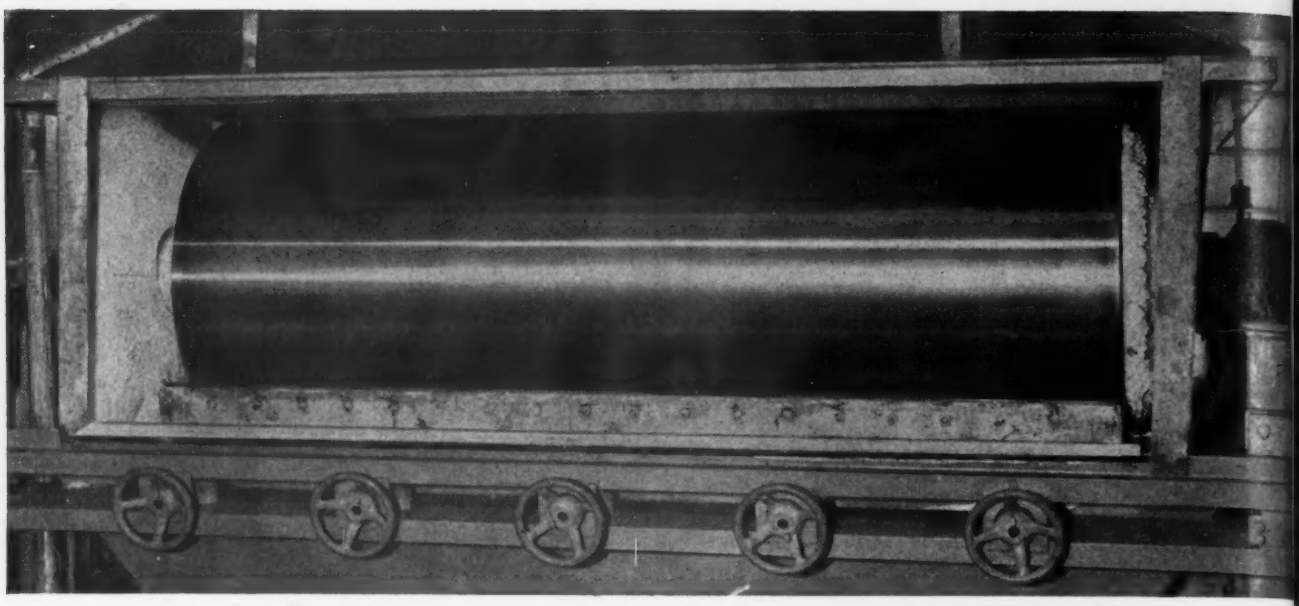
THE WHITNEY CHAIN AND MANUFACTURING COMPANY
HARTFORD 2, CONNECTICUT



technical service...this term includes the many types of service rendered by a technical service laboratory. The dyestuff concern which undertakes these technical functions must use that essential extra ingredient of sound judgment...judgment which manifests itself in logical conclusions based on sound knowledge...General's technical service is founded on years of intensive laboratory research...and practical mill experience.

GENERAL DYESTUFF CORPORATION

435 HUDSON STREET · NEW YORK CITY



PRODUCTION UP 25%

with Lukenweld Jacketed Drier Rolls

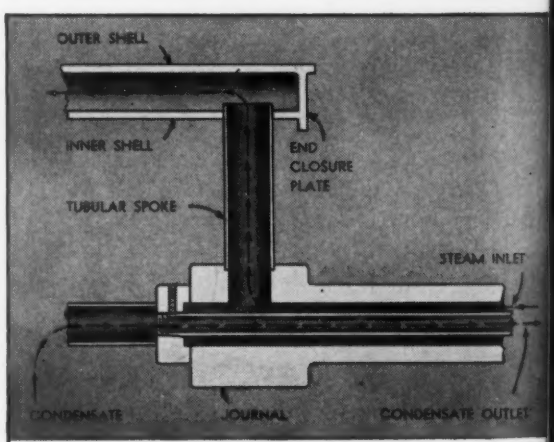
(PATENTS APPLIED FOR)

Production went up 25 per cent when Lukenweld *Jacketed* Drier Rolls replaced drum-type cast rolls in the machine shown above.

No other changes were made—increased production was entirely due to the greater drying efficiency and positive method of condensate removal provided by Lukenweld design and welded steel plate construction. Records, since installation of these rolls nine years ago, show that steam consumption was substantially reduced.

Whether planning new machines or looking for ways to increase production from your present equipment, you can make important savings with Lukenweld Jacketed Drier Rolls. With no increase in steam pressure, users report drying efficiency increased by 15 to 25 per cent. At higher steam pressures—up to 350 psi. with safety—efficiency increases are much greater. Welded steel construction permits a design that meets and maintains exacting dimensional tolerances.

The complete story about Lukenweld Jacketed Drier Rolls is contained in Bulletin 358. For your copy, write Lukenweld, Inc., 406 Lukens Building, Coatesville, Pa.



Lukenweld jacketed design effects superior heat transfer by keeping steam in constant circulation against the roll face, while removing condensate as rapidly as it forms. The rolls used in the machine illustrated above are 11′ 3⅜″ over-all by 2′ 8″ O. D. with a 7′ 6″ face.
Sizes from 2 feet to 18 feet O.D. and over.

Sizes from 2 feet to 18 feet O. D. and over

LUKENS
LUKENWELD DIVISION

LUKENWELD, Inc.

DRIER ROLLS AND DRYING MACHINERY

KOHORN

BUILDS MODERN RAYON PLANTS

Built by Oscar Kohorn & Co., Ltd. — Capacity over 25 tons per day.

Kohorn has built more rayon and staple fiber plants than any other organization. We have over 30 years' experience. Plants built by Kohorn stand out as the most modern, reliable and efficient in the world. We will build your plant and put it in operation in 18 months.

Pioneers of the Rayon Industry

OSCAR KOHORN & CO., LTD.

EXECUTIVE OFFICES

50 FIFTH AVENUE NEW YORK 17, N. Y., U.S.A.

KOHORN

Announces

THE NEWEST STAPLE FIBER MACHINERY

Cellulose is manufactured into the finest high-tenacity viscose staple fiber by this Kohorn machinery. Kohorn installs and operates the most modern staple fiber plants.

THE NEW KOHORN CELLOPHANE UNIT

Kohorn now makes it possible for rayon concerns to manufacture cellophane. Viscose rayon plants already have the organization and equipment necessary to make cellophane as soon as the Kohorn cellophane unit is installed. Kohorn experts will train your staff.

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RAYON PLANTS
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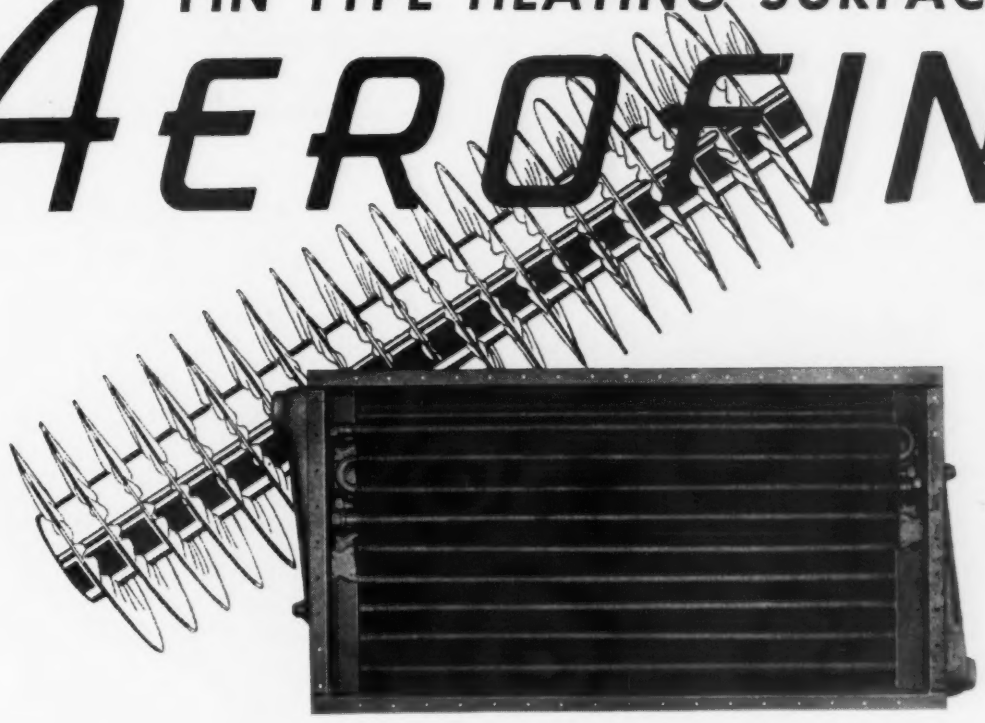
FIN TYPE HEATING SURFACE
AEROFIN



HIGH CAPACITY
in Limited Space . . . *Recognized and Utilized by*
OSCAR KOHORN & CO., LTD.

In cooperation with Kohorn — designers, builders and operators of rayon, yarn, staple fiber and cellophane plants—Aerofin Corporation is furnishing efficient, high-capacity heater units for the advanced machinery built in Kohorn's Queens Manufacturing Division.

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IT'S BAKER SPINNERETTES

FOR ALL PROCESSES

We have been producing spinnerettes for synthetic fibres since the early days of the rayon industry and our research and experiments have had much to do with making them the highly developed precision instruments that they now are. Today, Baker spinnerettes are in use throughout the world.

The history of the spinnerette is a splendid example of the close cooperation of interdependent modern industries. As the synthetic fibre manufacturer demanded greater and greater precision, we provided it; as more and more holes to the jet were called for, we made them available; when improvements in alloys were needed, we developed them. The synthetic fibre industry is a dynamic industry, subject to frequent changes and the spinnerette manufacturer must be always alert to keep pace with them.

Recent developments are the use of synthetic fibres for the fabric of tires for heavy vehicles and their increasing use for those of light cars as well. The multifilament yarn for this purpose requires spinnerettes with as many as 1000 holes. Another is in improved methods for the production of staple fibre for the spun rayon used in fabrics like artificial wool. Many spinnerettes, commonly in use, have as many as 5000 holes and the demand is for more and more holes; most usual sizes are from .002″ to .004″ within a tolerance of plus or minus .0001″.

We make spinnerettes for every process and purpose and into every one goes all the skill and knowledge acquired over the many years we have worked so closely with the synthetic fibre manufacturer.

BAKER & CO., INC.
113 Astor Street, Newark 5, N. J.

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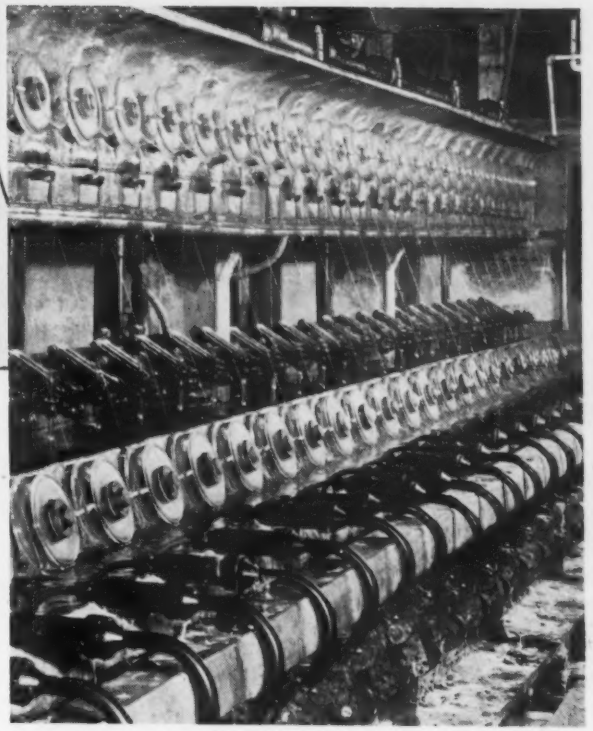

American Hard Rubber candle filters and spinnerette holders equip these reliable and highly efficient pot-spinning machines supplied and installed by Oscar Kohorn & Co., Ltd.

American Hard Rubber Company

Makers of **ACE** *Solid Hard Rubber and* **ACE** *Rubber Lined Pipe and Fittings* • **ACE** *Hard Rubber Lined Pumps* • **ACE** *Hard Rubber Lined Diaphragm and Gate Valves* • **ACE** *Hard Rubber Lined Steel Tanks* • **ACE** *Hard Rubber Molded Parts* • **ACE**-*Saran Spinnerette Couplings*

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OSCAR KOHORN & CO., LTD.,

THE WORLD'S LEADING FIRM OF RAYON PLANT

DESIGNERS AND BUILDERS

AMERICAN HARD RUBBER COMPANY

ACE *Hard Rubber Equipment for the Textile Industry*

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Greater operating efficiency stems from the exclusive design of the ACF Lubricated Plug Valve . . . providing a full pipe area through the ports — straight through uninterrupted flow. ACF Valves are now also manufactured in steel, as illustrated, for difficult services. Our standard semi-steel lubricated valve is being used extensively in viscose plants for handling caustics, carbon bi-sulphide, water, acids, air, gas, etc.

The ACF plug valve is produced in a non-lubricated type, both straightway and multi-port, for handling viscose.

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VISCOSE PRODUCTION EQUIPMENT

★ SHREDDERS

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Deliver Reliable Uniform Service

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USES BAKER PERKINS EQUIPMENT IN PERU, BRAZIL EGYPT, CHILE AND THROUGHOUT THE WORLD

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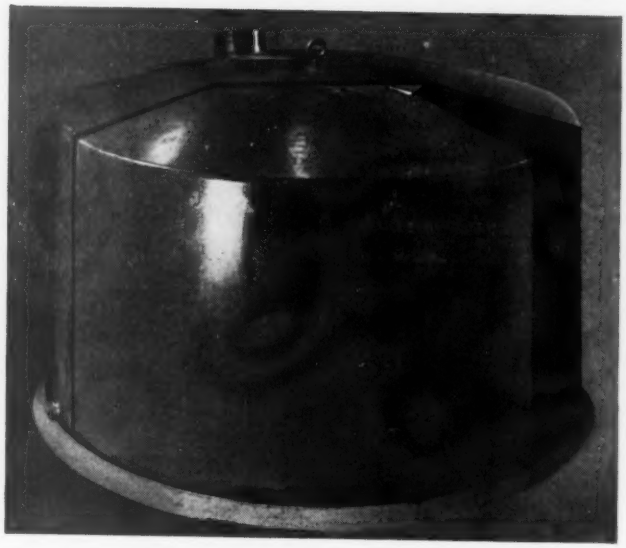
effective use is made of

BIRD
CENTRIFUGAL
EXTRACTORS

built by Bird Machine Company, world's leading designers and manufacturers of centrifugal equipment for the production of better goods and more of them per day at lower cost per pound.



Bird *Candle Extractors* are reliable equipment in the world renowned *KOHORN* RAYON PLANTS.

BIRD MACHINE COMPANY
SOUTH WALPOLE • MASSACHUSETTS

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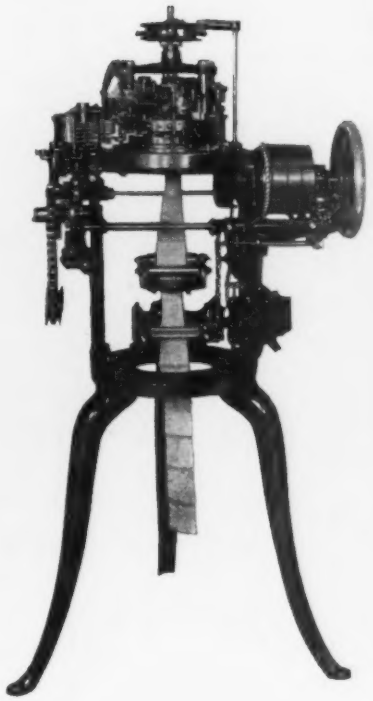

Leaders!

FOR OVER 58 YEARS

The name **BRINTON** carries prestige throughout the knitting industry. Quality producers know that they can depend on **BRINTON** for performance — output — and economy.

BRINTON knitting Machine technicians have led for over 58 years and kept step with the progress of the textile industry, culminating in the vast strides of the synthetics.

The finest mills are **BRINTON** equipped, for quality—versatility—fine production. The **H. BRINTON CO.** is world reknown for the integrity of its customer relations.

From large and small mills, producing fancy rib cuffs for infants' and children's anklets—underwear mills—manufacturers of knitted overcoatings—ladies' knitted dress fabrics — sweaters pullovers—or tubular fabrics —such as used in rayon plants for processing cheeses — **BRINTON'S** are the choice of able management.

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Representatives in all parts of the world.

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RAYON PLANTS
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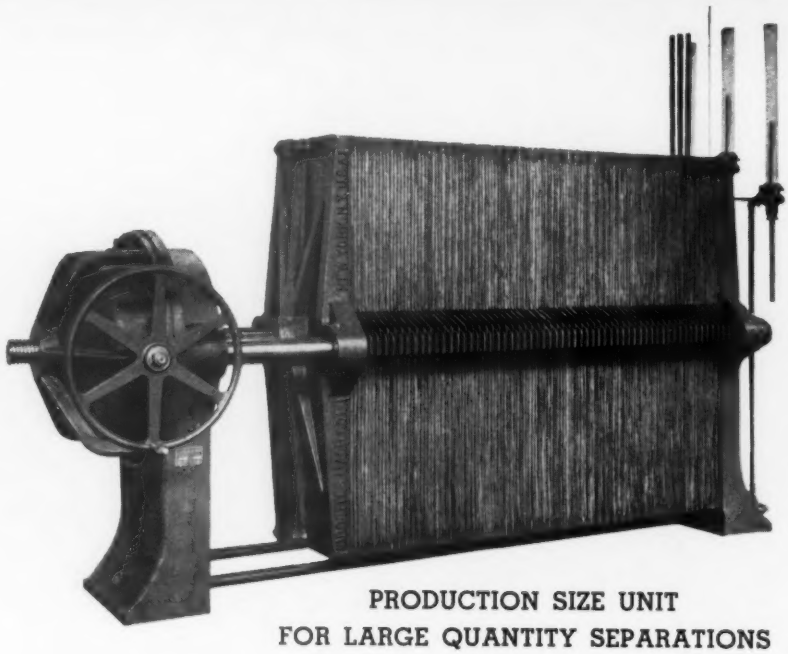
CONTINUOUS
DIALYSER



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FOR LARGE QUANTITY SEPARATIONS

RECOVERS CAUSTIC SODA EFFICIENTLY.

OSCAR KOHORN & CO., Ltd.

a leader in rayon plant engineering, construction and operation is installing batteries of these machines in new viscose filament rayon, staple fiber and cellophane plants under construction in Brazil, Chile and Egypt.

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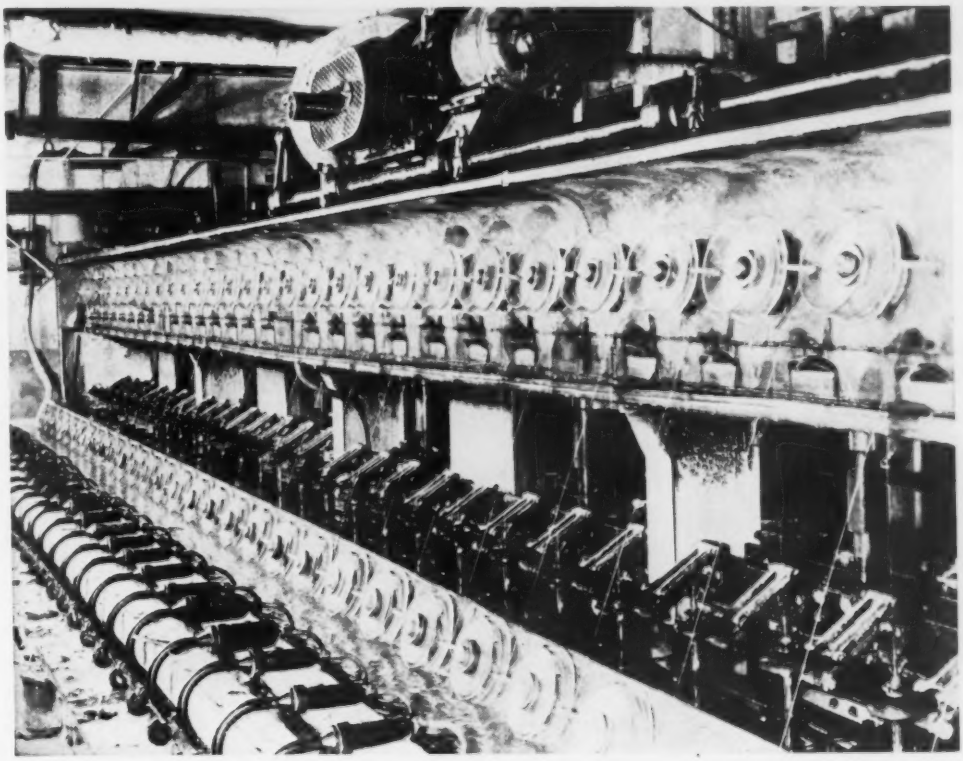

Butterworth "Spinmaster" Speeds Rayon Output

Call the roll of the great new rayon plants —in Egypt, in Brazil, in Chile, in Peru— and you will find they are Kohorn-built and Butterworth-equipped. The new Butterworth "Spinmaster" is breaking spinning room records in mills all over the world. The "Spinmaster" traverse produces cakes that are open and easily washed, saving both chemicals and time. Butterworth Rayon Spinning Machines are built entirely without cams, run in oil and are automatically lubricated. Speeds range as high as 90 strokes per minute. Butterworth Pot and Bobbin Machines are furnished in standard models or built to specification. Let us give you full details.

For export—Consult KOHORN.

BUTTERWORTH

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CHAIN HOISTS.
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EQUIPMENT ADAPTED TO AND USED FOR THE HOISTING AND TRANSPORTING OF VARIOUS TYPES OF MATERIALS AND PRODUCTION MACHINERY IN PLANTS LOCATED IN VARIOUS PARTS OF THE WORLD BUILT BY

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JIB CRANES.
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TRANSFER BRIDGES.

OSCAR KOHOR & CO., LTD.

INTERNATIONALLY KNOWN ENGINEERS, DESIGNERS, BUILDERS AND OPERATORS OF COMPLETE RAYON, STAPLE FIBRE AND CELLOPHANE PLANTS.

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THE CLEVELAND CRANE & ENGINEERING CO.
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CAUSTIC
VISCOSE
and other
SERVICES

EASTERN STEEL TANK CORPORATION
is proud to cooperate with
OSCAR KOHORN & CO., LTD.

in equipping the world's most modern synthetic fiber plants. Eastern's extensive production facilities and location on the Atlantic coast provide early deliveries that contribute to the faster completion of the plants Kohorn is building abroad.

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WE ARE EQUIPPED TO FABRICATE ANY TYPE OF STEEL PLATE PRODUCTS TO YOUR SPECIFIC REQUIREMENTS

In the World's most modern

RAYON PLANTS

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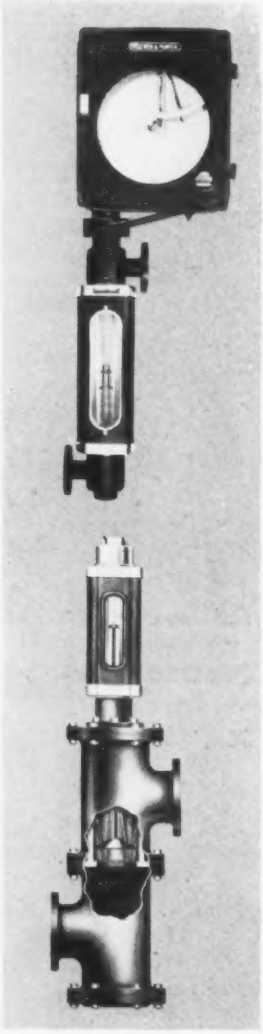
FLOWRATOR

FLOW MEASUREMENT INSTRUMENTS

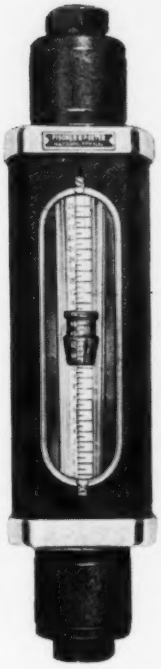


CONTROL & INDICATE

- Caustic soda flow rate to steeping presses insuring a high quality yarn.
- Caustic soda dilution to dyalizers.
- Spin bath acid flow rate and spent spinning bath reclamation.
- Desulphurizing solution flow rate.
- Viscose solution VISCOSITY prior to spinning.
- Carbon bisulphide flow in the treatment of alkali-cellulose.

FLOWRATOR instruments are particularly well adapted for the highly corrosive fluid metering applications in the Rayon Industry. We cooperate fully with OSCAR KOHORN & CO., LTD. in developing precise control throughout the great new rayon plants which they build and operate.

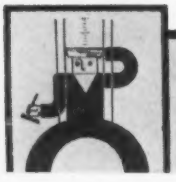
Send for Catalog 32 describing Corrosive Service FLOWRATOR Meters and Catalog 50 giving complete details about Electric & Magnetic Remote Instruments.



FLOWRATOR
Basic Principle

In this type of meter, the variation in area is obtained by means of a vertical tapered tube with the smallest diameter at the bottom. A weight of fixed diameter, (called the "float") moves freely within this tapered tube and hence the area between the float and tube increases as the float rises. This area then becomes a measure of the flow and for every flow rate there is a fixed position of the float in the tube. Therefore, the "FLOWRATOR" can be accurately calibrated to read directly in flow rate.

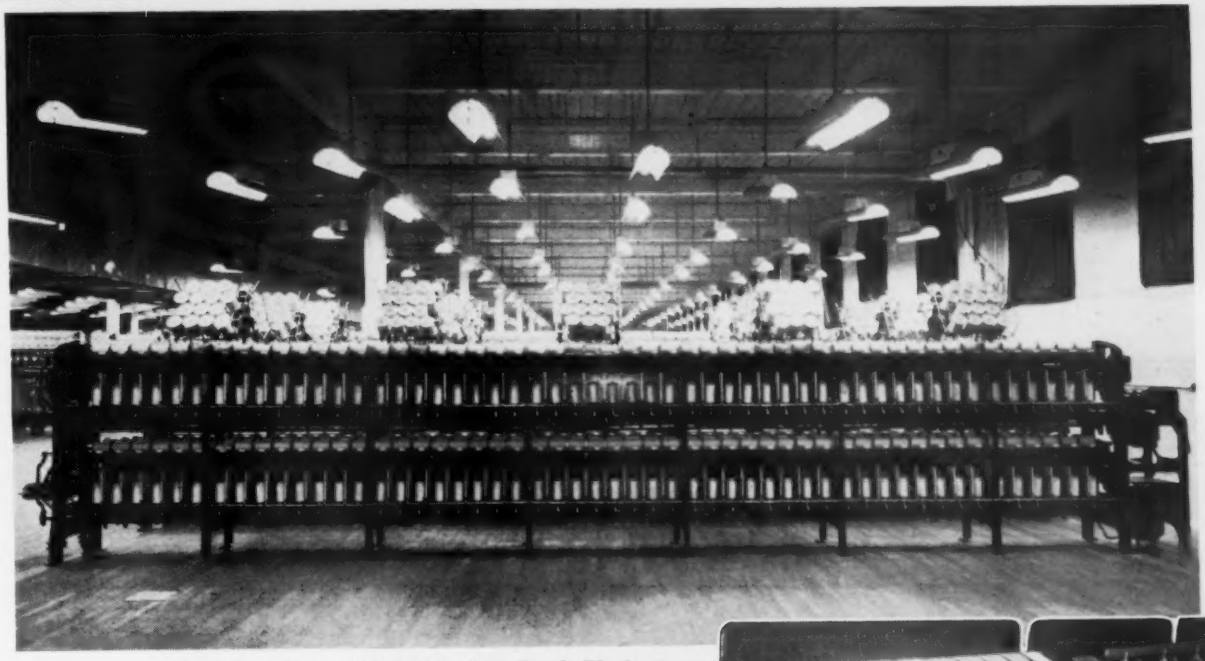
Write for Catalog 10 in which we illustrate in an easy-to-read style the many advantages of this method of flow measurement.



FLOWRATOR
TRADEMARK

FISCHER & PORTER CO.
DEPT. 7U-8X HATBORO, PENNA.

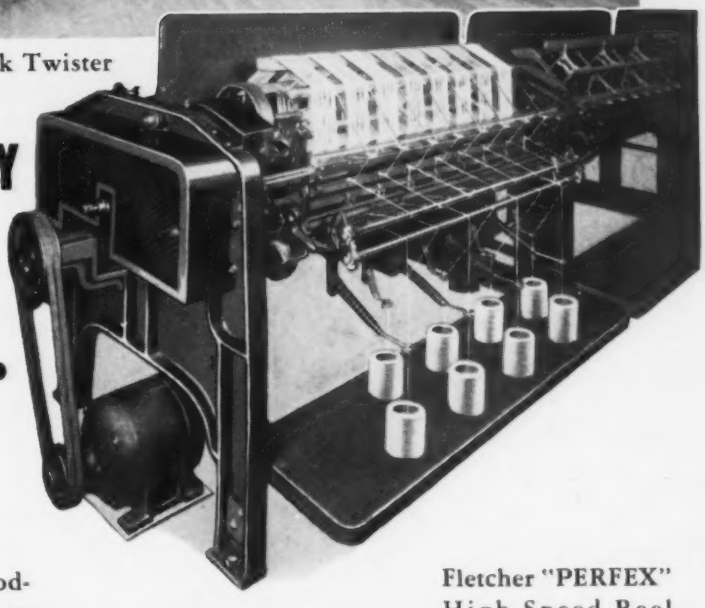
In the World's most modern
RAYON PLANTS
designed, built and operated by
KOHORN



Fletcher Heavy Duty Double Deck Twister

for
THROWING MACHINERY

It's Fletcher ...



Fletcher "PERFEX"
High Speed Reel

Accepted and installed by most modern rayon plants as standard equipment

FLETCHER WORKS

223 GLENWOOD AVE. PHILADELPHIA 40, ESTABLISHED • 1850

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supplies / ***Pipe***
Valves
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OSCAR KOHORN & CO., LTD.

the world's oldest and most experienced firm of rayon plant builders receives our fullest cooperation. We salute Kohorn's ability to establish and operate Rayon Yarn, Staple Fiber and Cellophane Plants throughout the world.

— OVER 50 YEARS OF "GUYON" SERVICE —

CHAS. F. GUYON, INC.

501 Fifth Avenue **New York 17, N. Y., U. S. A.**

Largest Distributors in Eastern U.S.A.

HUNGERFORD & TERRY

WATER TREATMENT UNITS

are being delivered to

4 of the great post-war installations of viscose rayon yarn and viscose staple fiber plants, designed, constructed and operated by

OSCAR KOHORN & CO., LTD.

H&T INC. PURE WATER

for RAYON—STAPLE FIBER and CELLOPHANE PLANTS

The reliability and efficiency of HUNGERFORD & TERRY water treatment units contributes greatly to the guaranteed performance of rayon yarn, staple fiber and cellophane plants being built abroad by Kohorn.

HUNGERFORD & TERRY INC.

Clayton, New Jersey, U.S.A.

Specialists in the manufacture of fully guaranteed water treatment equipment for the textile industry for nearly half a century.

In the World's most modern
RAYON PLANTS
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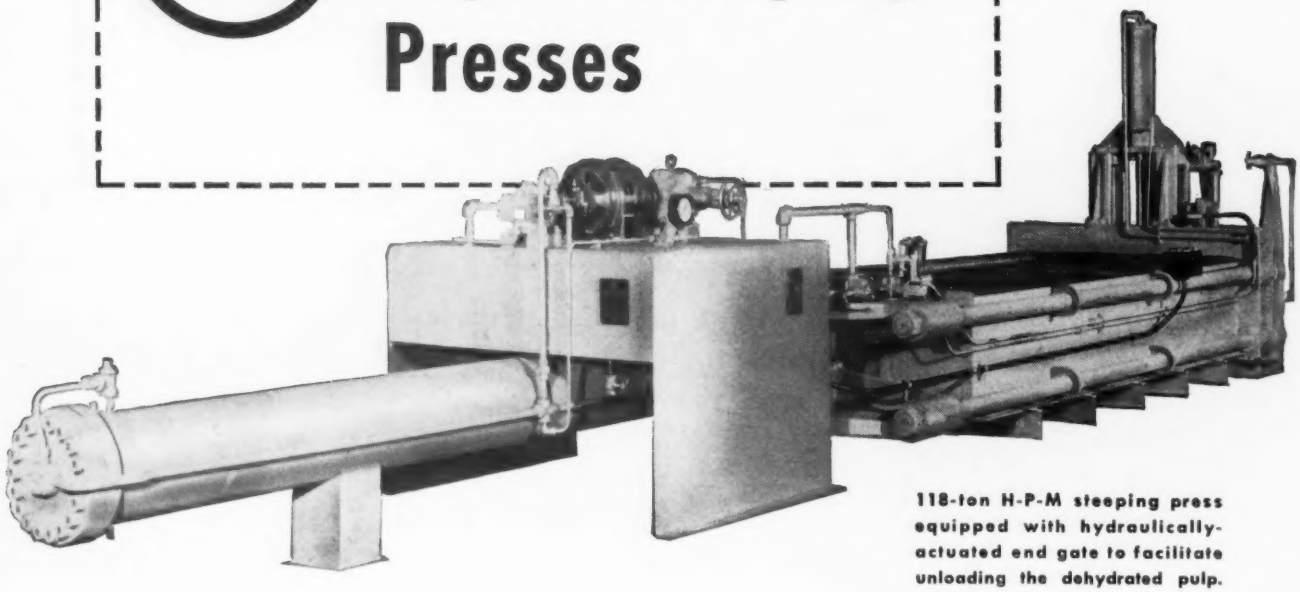
KOHORN

HPM Rayon Steeping Presses



118-ton H-P-M steeping press equipped with hydraulically-actuated end gate to facilitate unloading the dehydrated pulp.

The H-P-M steeping press is a self-contained, horizontal-acting hydraulic press with platen traversing in an open-top tank. Vertical plates divide the steeping tank into compartments which hold the sheets of pulp on edge.

These sheets of wood pulp, cotton linters pulp, or a combination of both materials, are steeped in the caustic soda solution contained in the press tank. After steeping, the tank is drained and the press removes the excess moisture in the pulp.

H-P-M steeping presses are built in eight sizes, as small as 60 tons and up to 200 tons . . . the choice of leading viscose rayon producers the world over. Detailed literature and quotations furnished on request.

The Hydraulic Press Manufacturing Co.

MOUNT GILEAD, OHIO, U. S. A.

REVOLUTIONIZING PRODUCTION WITH HYDRAULICS SINCE 1877

INDUSTRIAL GLASS WORKS

cooperates fully with **OSCAR KOHORN & CO., LTD.**

KOHORN RAYON PLANTS

equipped with **INDUSTRIAL GLASS PARTS**

assure efficient operation

● *Glass Specialties—for Rayon Spinning:*

Borneman Patent Spinning Funnels

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Hook Guides

Post Guides

Roller Guides

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● *All Made to Customers' Specifications*

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Textile Glassware — Laboratory Apparatus

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RAYON PLANTS

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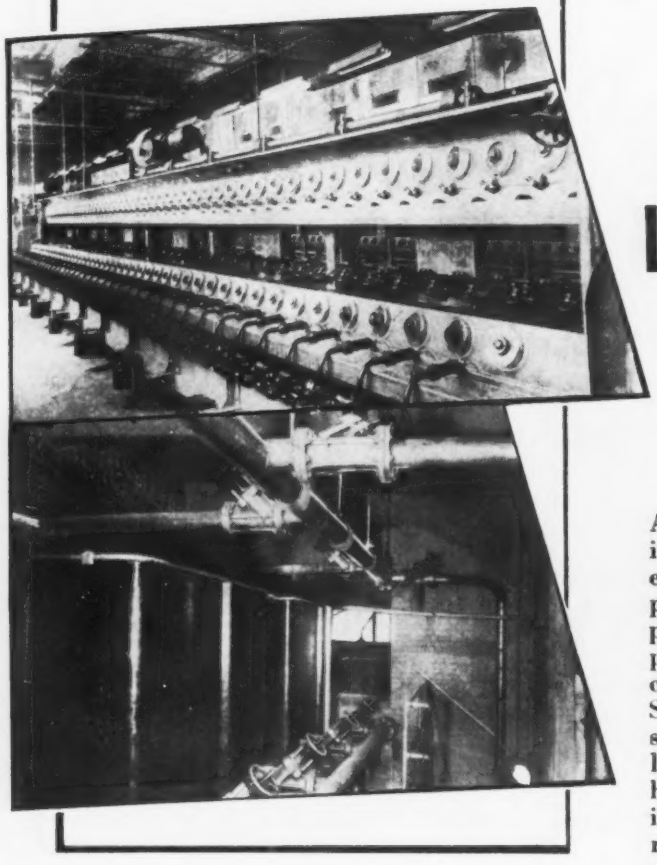

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Lead and Lead-lined Equipment is Employed

A complete service including fabrication, design and installation of lead and lead-lined equipment is essential in the construction and operation of distant plants even more than domestic ones. The long experience and leadership of the O. G. Kelley Co., plus this "all-'round" ability make them the logical choice for such important assignments in Rayon and Staple Fibre Plants the world over. This complete service includes: lead-burning and homogeneous lead-bonding on location; lead and lead-lined tanks; hard lead and lead-lined valves, piping, fittings, castings and cocks; pumps — hard lead, lead-lined, rubber-lined stainless steel, nickel, monel, aluminum and bronze. Also, Stainless Steel after-treatment machines, tanks and processing equipment.

Recent Kelley Installations for KOHORN include plants in:
PERU • BRAZIL • CHILE • EGYPT

LEAD STEEL WOOD

O. G. KELLEY & CO.

fabricators of equipment for the process industries

NEW YORK CITY
NEW YORK

95 Taylor Street
BOSTON 22, MASS.

JOHNSON CITY
TENNESSEE

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RAYON PLANTS

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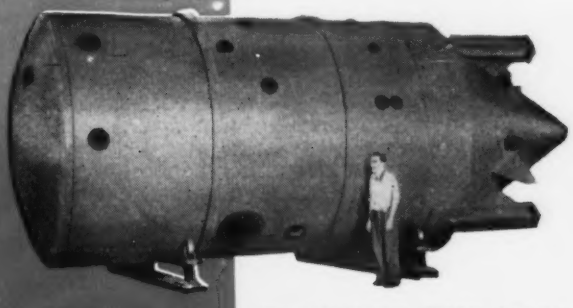
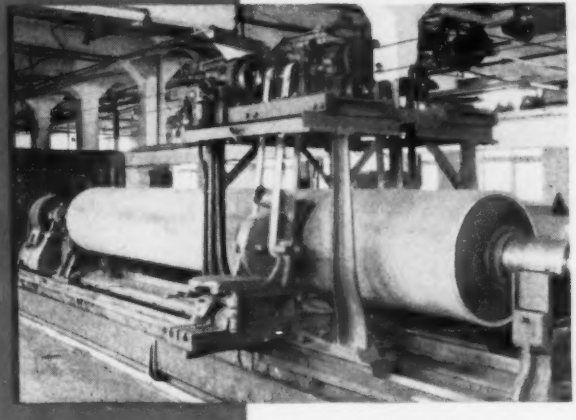
KOHORN

MANHATTAN RUBBER COVERED ROLLS contribute directly to the efficient performance of Kohorn cellophane machines.



Giant Manhattan Rubber Lined Evaporator for Rayon Plant.



Facilities for Absolute Accuracy on Rolls of All Sizes.

MANHATTAN ENGINEERS for RUBBER COVERED ROLLS and RUBBER LINED TANKS work closely with OSCAR KOHORN AND CO., LTD

. . . to insure high performance and day-in, day-out dependability in the operation of Kohorn's cellophane and staple fiber machinery. Manhattan has plant capacity to rubber cover the world's largest rolls and rubber line the world's largest tanks. 50 years' experience doing this kind of work is your warranty of "Quality that Lasts."

Manhattan also manufactures Condor Transmission and Cone Belts, Condor V-Belts and Condor Hose.

RAYBESTOS R M MANHATTAN

RAYBESTOS-MANHATTAN INC.

Keep Ahead with Manhattan

MANHATTAN RUBBER DIVISION **PASSAIC, NEW JERSEY**

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RAYON PLANTS

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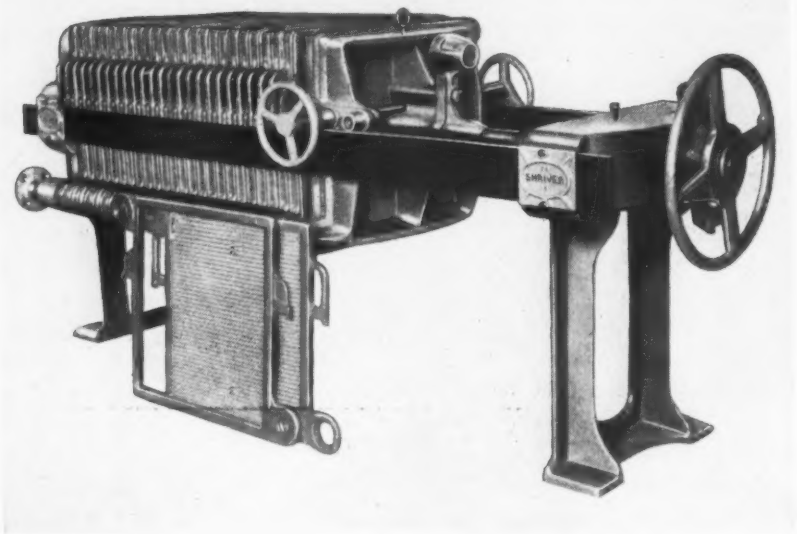

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THE LEADING FILTER PRESS

IN RAYON PRODUCTION

In Kohorn-built rayon plants around the world, as well as in most of the American plants, Shriver Filter Presses handle well over a million pounds of viscose and acetate solutions daily, imparting the speckless, perfect clarity so essential for high quality yarn.

From the small laboratory or pilot plant unit to the enormous batteries of large scale production machines, Shriver Filter Presses can be depended on for time-tested, trouble-free, economical performance and long service life. Literature and detailed information on request.

T. SHRIVER & COMPANY, INC.

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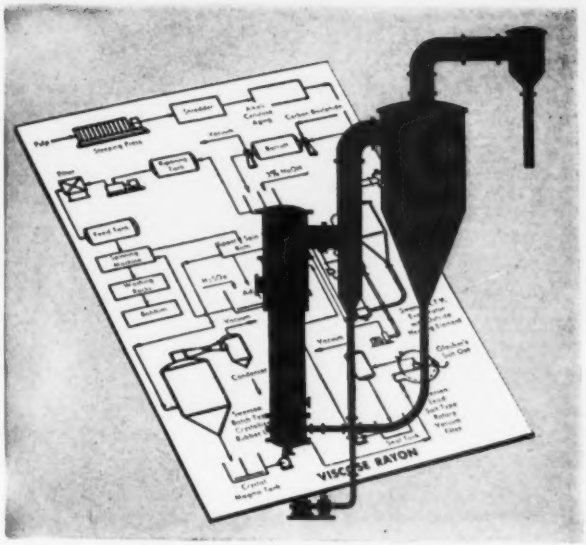
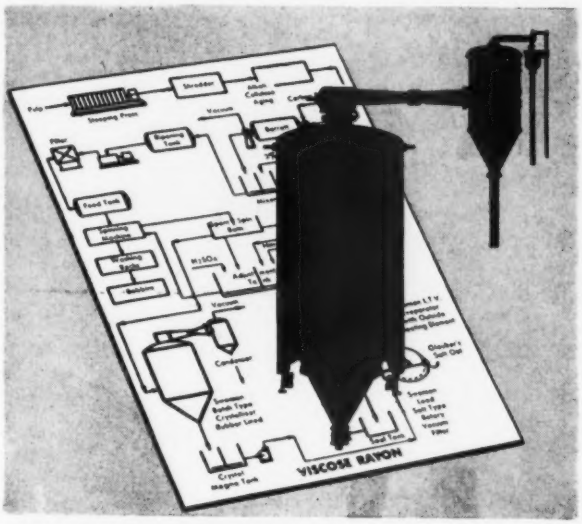
FOR BETTER FILTRATION

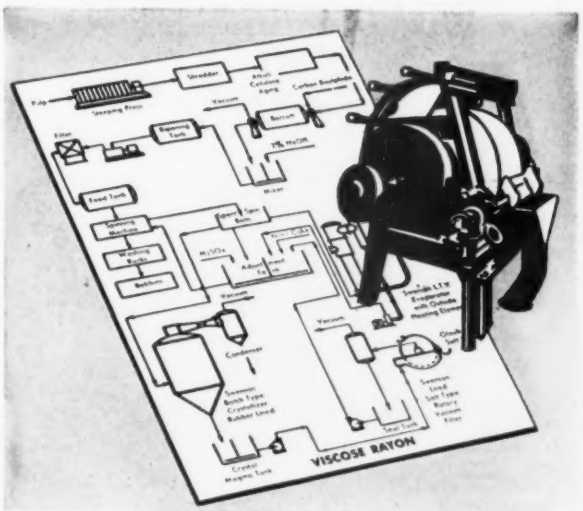
Shriver FILTER PRESSES



Swenson Long Tube Vertical Evaporator, specially constructed of rubber-lined steel with Karbate tubes and outside heating element. Concentrates spent spin bath.



Swenson Vacuum Crystallizer, for operation under conditions peculiar to the viscose rayon process. Gives high production yield. Built of rubber-lined steel.



Swenson Rotary-Drum Vacuum Filter built of lead and rubber-lined steel to resist acid attack. Assures long life and low cost in filtering out Glauber's Salt.

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RAYON PLANTS
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KOHORN

SWENSON
co-operates closely with
Oscar Kohorn & Co. Ltd.
in furnishing
Spin Bath Evaporators
Vacuum Crystallizers
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Karbate Tube Heaters
for new
Viscose Rayon Plants
in
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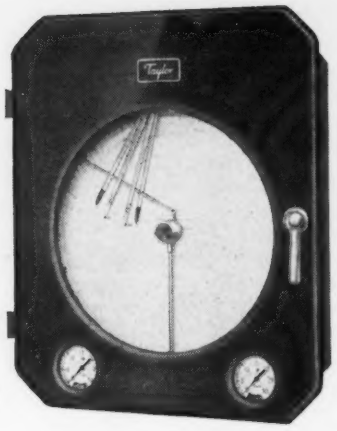


Taylor Instruments Guide Continuous Operation

IT'S A FACT! Taylor Instruments are extensively used in rayon plants and machinery designed, built and operated by Oscar Kohorn and Co. Ltd.

For example, in a new design rayon dryer now under construction in Kohorn's Queens Manufacturing Division, Taylor Instruments will control and record temperatures, air circulation, and humidification.

Naturally, we're proud of the confidence Kohorn has shown in "Taylor Accuracy" and the fact that they choose Taylor Instruments to solve their rayon processing problems. Taylor Instruments have proved their accuracy and dependability in all phases of rayon production:

1. **Instruments for processing rayon**
2. **Instruments for preparation of materials used in rayon production**
3. **Instruments for conditioning plant atmospheres to carry on these processes**

Whatever your processing problems—for rayon or any other textiles—Taylor Accuracy can help you. Call in your Taylor Field Engineer or write Taylor Instrument Companies, Rochester, N. Y., or Toronto, Ontario.

▼ ▼ ▼

Instruments for indicating, recording and controlling temperature, pressure, humidity, flow and liquid level.

Taylor Instruments
MEAN
ACCURACY FIRST
IN HOME AND INDUSTRY

Otis Elevator Company

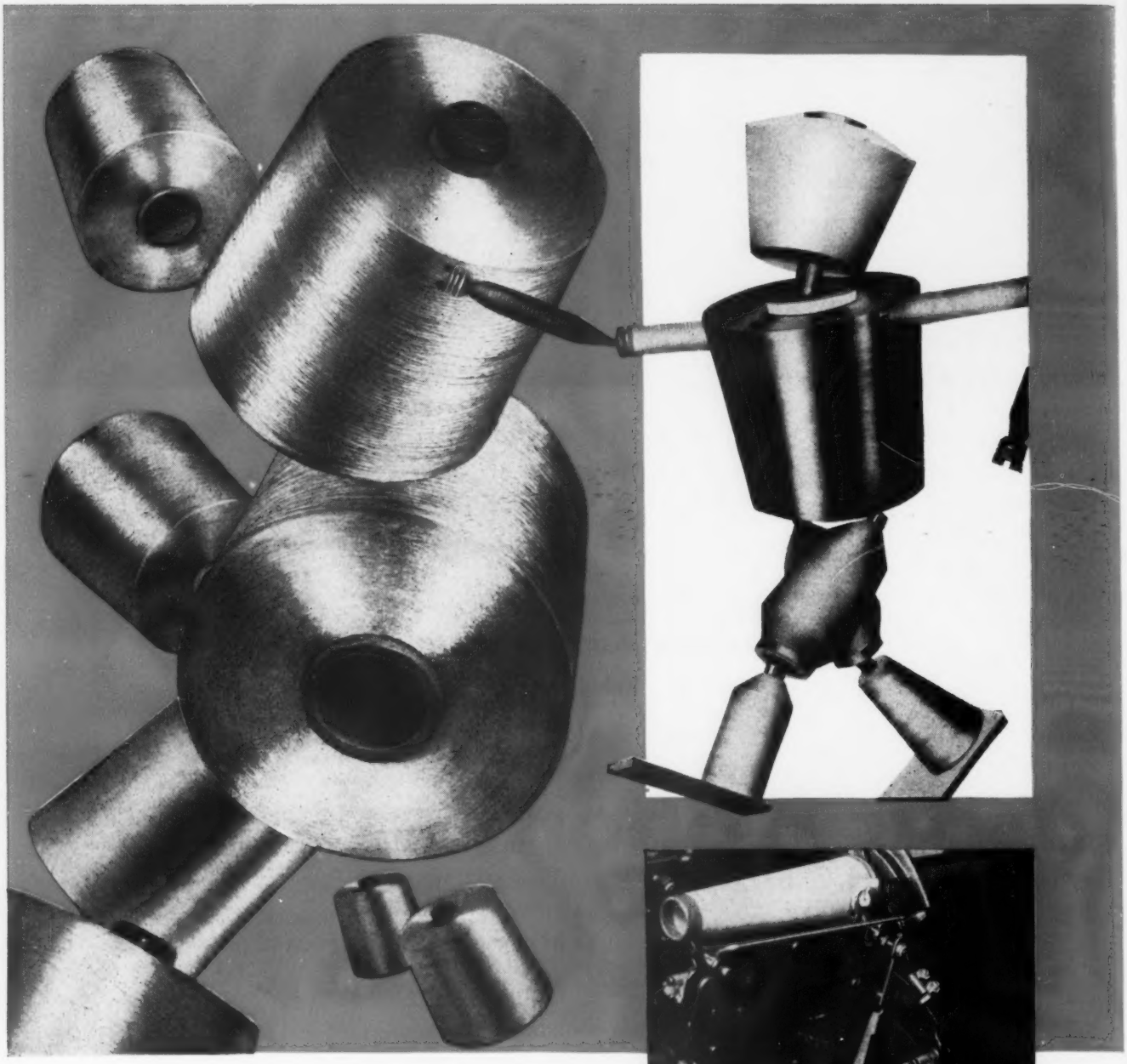
furnishes heavy-duty elevators, with Unit Multi-Voltage and automatic leveling, to lift raw materials to the top of plants where the economical Kohorn gravity feed system begins.

Oscar Kohorn & Co., Ltd.

uses numerous Otis Elevators in its current construction of rayon and cellophane plants which will have a total production of over 50 million pounds per year.

ELEVATOR COMPANY

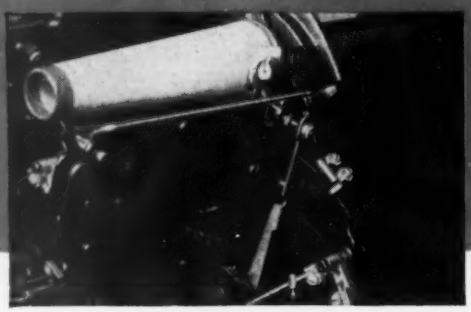
Offices in all principal cities



The original quality of more than 90% of all synthetic filament yarn on cones has been preserved and protected by winding on Universal Precision Winding Machines and shipping on Universal Cones.

Better Packages . . . Higher Production . . . with the All-Purpose Winding Machine In The World's Most Modern Rayon Plants, Designed, Built and Operated by

KOHORN



Better packages with POSITIVE SIZING. The winding of uniform packages is insured by the Positive Sizing Attachment. It is so sensitive that it will stop the machine within one yarn layer of predetermined full package diameter.

LEESONA
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UNIVERSAL WINDING COMPANY

PROVIDENCE 1, RHODE ISLAND, U.S.A.

Branches at: Manchester, England; Paris, France; Basle, Switzerland. Agents in every textile center in the world.

In the World's most modern
RAYON PLANTS
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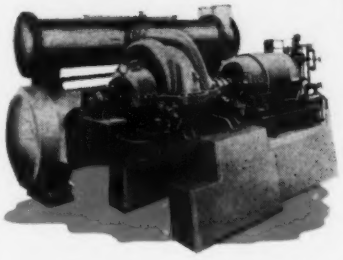
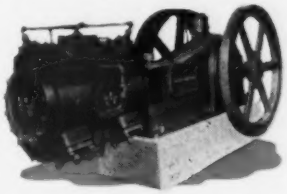
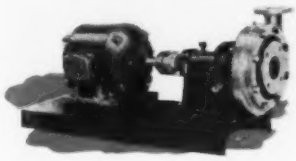
...WORTHINGTON EQUIPMENT IS THE CHOICE



Worthington Centrifugal Refrigeration Systems are employed in many applications covering a wide range of temperatures. Because of their large capacities, Worthington Centrifugal Refrigeration Compressors are well suited to extreme low temperature operations where medium and large refrigeration loads are encountered.



Worthington Single Horizontal Compressors are made in 29 sizes and a variety of steam and motor-driven models, with capacities ranging from 55 to 1987 cfm—all with the famous Worthington Feather* Valve. Built for continuous heavy duty, they perform with unfailing dependability and economy throughout a long service life.



Highly efficient handlers of corrosive and abrasive liquids, Worthington Worthite Centrifugal Pumps are belt or motor driven, with capacities to 1200 gpm and heads to 205 ft. Worthite—a complex alloy steel containing over 50% nickel, chromium, molybdenum, silicon, manganese and copper—has all the advantages of stainless steel over a wider range.

Other Worthington products now serving the textile industries are: equipment for air conditioning, refrigeration or ice-making; Diesel engines; air and gas compressors; steam condensers; feedwater heaters and deaerators; water softeners and pressure filters; pumps of all types; liquid meters; V-belt drives; variable speed drives.

IN EVERY CORNER OF THE GLOBE

These and the rest of Worthington's extremely diversified equipment, together with full service facilities, are available from distributors and associated companies in the following countries: Argentina, Australia, Austria, Belgian Congo, Belgium, Bermuda, Bolivia, Brazil, Canada, Chile, China, Colombia, Costa Rica, Cuba, Ecuador, Egypt, El Salvador, Finland, France, French Indo-China, French North Africa, French West Africa, Great Britain, Guatemala, Hawaii, Honduras, Iceland, India, Italy, Jamaica, Luxemburg, Mexico, Netherlands, Newfoundland, New Zealand, Nicaragua, Norway, Palestine-Lebanon, Panama, Paraguay, Peru, Philippine Islands, Portugal, Portuguese East Africa, Puerto Rico, South Africa, Spain, Straits Settlements, Sweden, Syria, Tobago, Trinidad, Turkey, Uruguay, Venezuela, Virgin Islands. For details, write to *Worthington Pump and Machinery Corporation, Harrison, New Jersey, U. S. A. Offices and representatives throughout the world.*

E7-17

WORTHINGTON

THE SIGN OF VALUE
AROUND THE WORLD

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Westinghouse Electric International Company

supplies

Electric Motors - Switchgear - Controls
Rayon Spinner High Frequency Motors
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OSCAR KOHORN & CO., LTD.

Rayon Engineers and Plant Builders

has our full cooperation in the design and prompt delivery of everything electrical for the Rayon Yarn, Staple Fiber and Cellophane Plants it builds.

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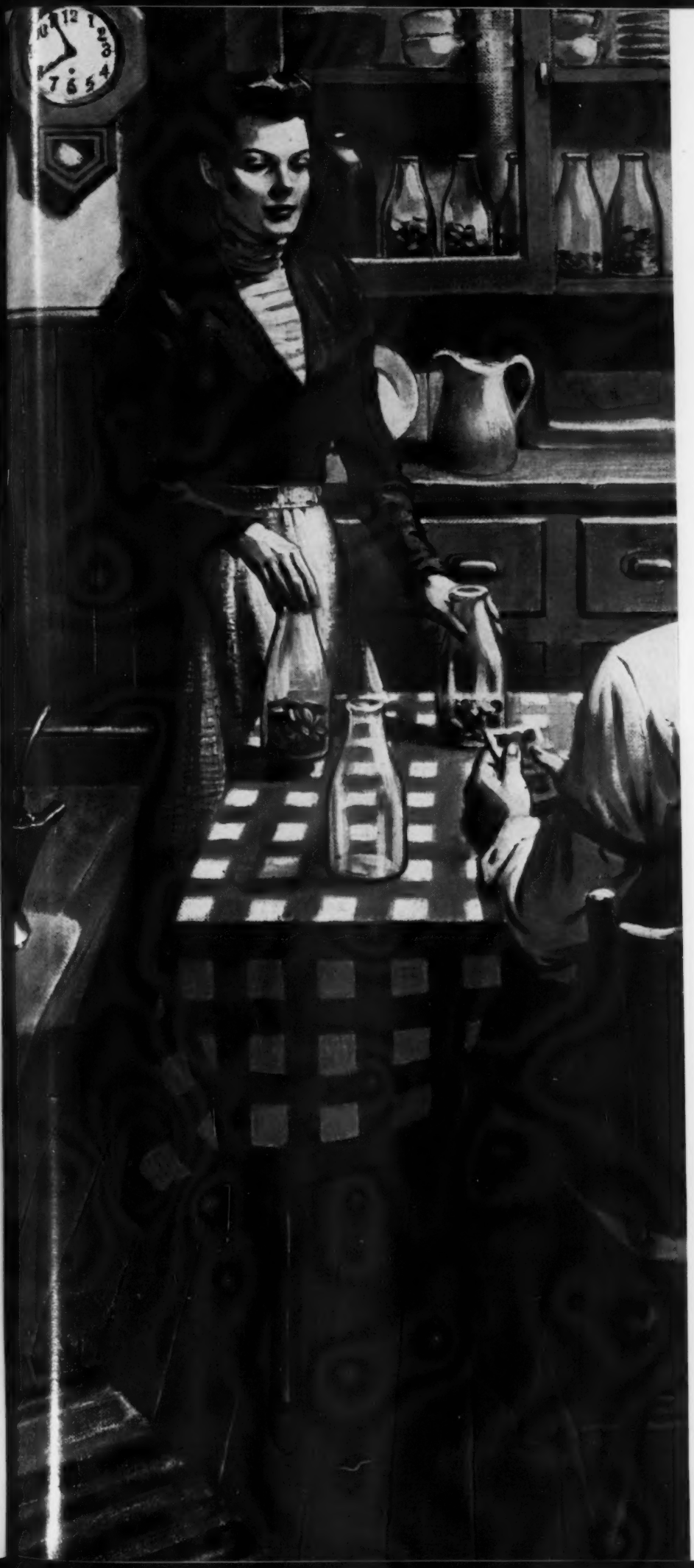
Everything Electrical for the Rayon Industry



Mother never robbed one fund to pay another

There was something unique about Mother's milk bottle system.

Once a quarter was dropped in the "Insurance" bottle, it stayed there until the insurance man came. We didn't buy food with the "Rent" money. We didn't go to the movies with the "Clothing" money.

It took a lot of managing on Mother's part but the money was always ready when we needed it.

•

A Manufacturer was going over his Financial Statement. "We've got a lot of money in that Reserve for Depreciation," said he, "Where is it?"

"That's just a bookkeeping entry," said the Controller. "Actually we treat our reserve as a cash gain available for the repayment of loans or the purchase of raw materials."

"That's not where it belongs," said the Manufacturer.

"A Reserve for Depreciation belongs in *reserve*—in a separate bank account, or invested in short-term government bonds or readily negotiable securities. This reserve must be ready when our old equipment needs replacement in order to keep us in a competitive position."

It's as simple as that—and extremely important to every manufacturer.

•

An advertisement on "Good Housekeeping in Business," published by the makers of Reading Full-Fashioned Knitting Machines.

TEXTILE MACHINE WORKS
READING, PENNA.

Autumn Preview . . . Forecast: beauty for lovely legs and profit for the smart hosiery manufacturer with sheer, clear, full-fashioned stockings. TMW "Fixture Drawn"* Needles, made by a TMW patented process which holds the needles straight and true, are your assurance of knitting perfection. Let us put your needle bars in shape for faster, more accurate, more profitable knitting.

* Reg. U. S. Pat. Off.

TEXTILE MACHINE WORKS • READING, PA.

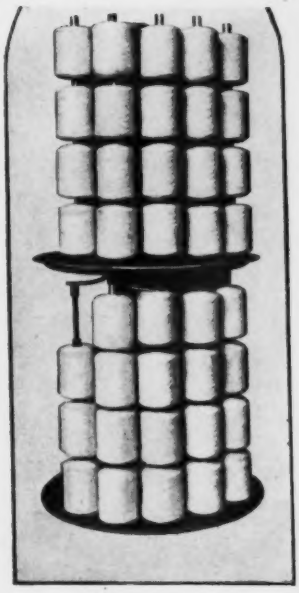
Obermaier

Reg. Trade Mark

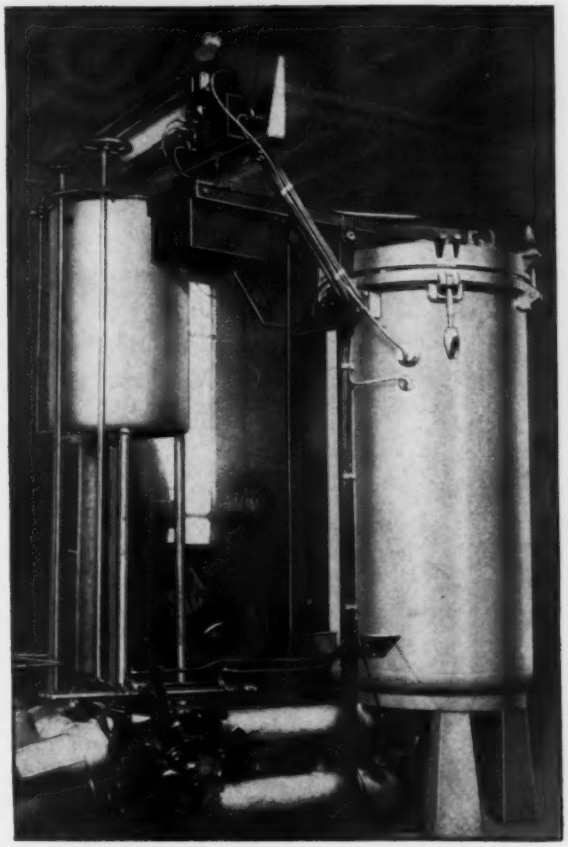
COMBINATION BEAM AND PACKAGE DYEING MACHINE

Stienen

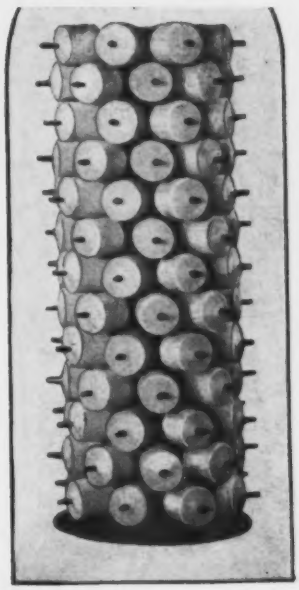
Trade Mark



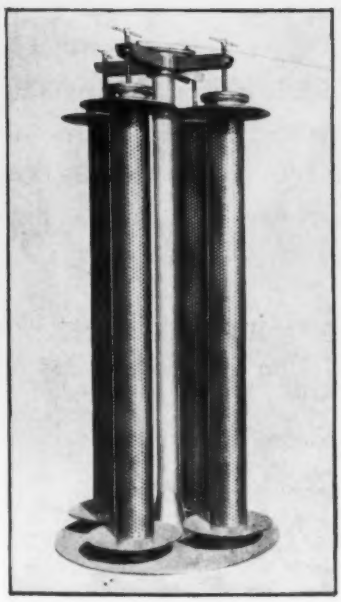
Stainless Steel Double Material Package Carrier



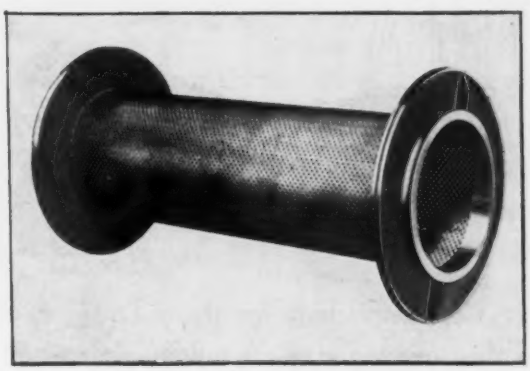
Model Kam Stainless Steel Combination Beam and Package Dyeing Machine—Capacity, One to Six Beams.



Stainless Steel Porcupine Package Material Carrier



Stainless Steel Material Carrier with Four Small Beams.



Standard American Stainless Steel Beam

Standard Fabricators

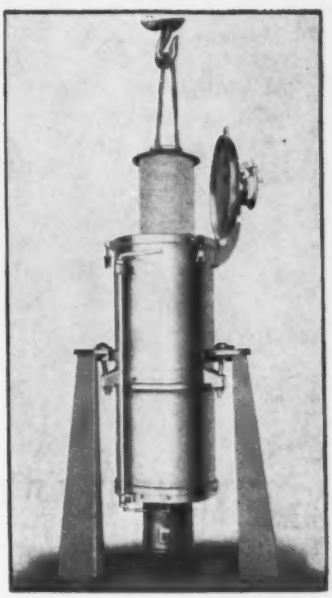
INCORPORATED

355 WALTON AVE. NEW YORK 51, N. Y.

BUILDERS OF

DYE-SPRINGS

TRADE MARK



Stainless Steel Centrifugal Beam Extractor.

COTTON AND WOOL DYEING MACHINES — FOR BEAMS — PACKAGES — RAWSTOCK — SKEINS — RAYON CAKES — DYE SPINDLES — PERFORATED TUBES — CENTRIFUGAL PUMPS — EXTRACTORS AND DRYERS

here's what it takes

TECA, Eastman *crimped* acetate staple, is a fiber that puts life in a weave—gives it a naturally lofty hand—lasting resistance to wrinkles—a resistance to shrinkage that cannot wear off. That's why all-TECA weaves are now in the picture. And why so many new constructions have higher TECA percentages.

Consumers look for these TECA advantages—just as mill men look to this uniform staple for fine spinning qualities on any system, and for smooth running behavior on their looms.

EASTMAN—*crimped acetate rayon*

For further information about TECA, consult A. M. Tenney Associates, Inc., 10 East 40th St., New York, sales representatives for TENNESSEE EASTMAN CORPORATION (Subsidiary of Eastman Kodak Company), KINGSPORT, TENNESSEE.

TEXTILE WORLD
SEPTEMBER, 1947 • VOL. 97, NO. 9

Mother India Is Rearing A Modern Textile Industry

HIGHLIGHTS:—*Industrialization of India is progressing despite problems—Current proposals would increase textile machinery 30% by 1951—Government controls complicate present picture—Fabrics scarce, raw cotton accumulating—One province sticks to its hand spinning and weaving—Mechanized production must win out—India plans self-sufficiency on machinery with help of British combine—Still large American opportunities there.*

INDIA'S PROGRESS toward broader industrialization is beset with all the conflicts that arise from government economic controls, from the application of social-benefit legislation, and from the unbalance of shortages of some things and surpluses of others. Already an important country in textile production, India currently plans an increase in installed machinery of about 30% by 1951. The proposals will raise her cotton spindles from the 1945 figure of 10,238,000 to 13,096,000 and her looms from 202,400 to 277,000.

Textile leadership of the East is in India's hands, since her machinery considerably exceeds that known to be available in China and Japan; and, based on latest available figures, she is close to being on a par with Asiatic Russia. Only Great Britain and the United States exceed India and Russia in textile equipment. With her new independence, India can make her textile future pretty much as her vision and initiative permit.

Independence in two separate areas —Pakistan and India—has brought mass slaughter and mass migration in areas near the borders. It is Sikh versus Moslem, and some authorities believe perhaps 1,000,000 persons are displaced and wandering in the affected districts. Actually Pakistan is of minor industrial importance, having only 9 cotton mills against 380 in India, no jute mills against 108 in India, 10 sugar mills against 156 in India, no steel plants against 18 in India, 2 glass factories against 77 in India. In agriculture, Pakistan is relatively more important, having 1,403,000 acres of jute against India's 983,000; 1,630,000 acres of cotton against India's 13,770,000; 5,000,000 of rice against India's 17,000,000. In mineral production, including coal and iron, Pakistan has practically no resources.

According to the Cotton Textile Digest of Calcutta, the cotton division of the textile industry in India stands today in the forefront as the biggest national business of that country. It is rooted in the legend and skill of centuries, for India is regarded by historians as the birthplace of cotton growing and manufacture. The cotton division today employs over 510,000 workers (with allied industries, it totals 727,112), as compared with 314,000 workers in jute mills, 44,305 in wool mills, and 12,565 in silk mills.

India's first power-driven cotton mill was built near Calcutta in 1817, but development was slow until around 1865, and by about 1880 the installed spindles crossed the million mark. As late as 1900, the industry was essentially a spinning industry only. It fed the great army of Indian hand weavers. By 1945, however, power-loom cloth production had reached 4,800,000,000 yd. per annum, against an estimated 1,500,000,000 yd. annual production of handloom cloth. Tariff protection, granted in 1930, is credited as responsible for a large part of that growth.

The key to the current trend of

mill building and expansion in India is found in the All-India Postwar Plan of textile-industry expansion which was effected last year. This plan figures the necessary additional spindles as 2,750,000 and allocates new spindles and corresponding new looms to the various provinces according to a scheme to decentralize the industry and make each province more nearly self-sustaining. Bombay, the center of the industry, gets no allocation save for a few spindles for replacement. The matter of full replacement is a problem for the future, since 80% of India's present spindleage is obsolete.

The future possibilities of the textile industry in India are almost limitless. There is great need for cloth, there is available labor, there is financial ability due to high profits during the war. At the moment, however, there are critical factors of fabric rationing due to scarcities, of black markets and corruption, of labor unrest, of control legislation, of undeclared civil war, etc., which jeopardize India's industrial progress.

Dinkerrao Desai, Minister on Civil Supplies in Bombay, has stated that now is the proper time for the government to decontrol cloth altogether. Other opinion suggests release of trading controls but maintenance of price controls. These, however, have had a retarding effect on production.

Against various evidences of fabric scarcity, there is a crisis in the Indian cotton trade due to large accumulations resulting from political uncertainties, communal disturbances, lack of storage accommodations, reduction of consumption by mills, government restrictions on export, high insurance rates, etc.

A crowning point for dissension has been the refusal of the province of Madras to take up its allotment of spindles and looms under the All-India plan because of its decision to

REPORT FROM INDIA on Textile-Industry Developments

By J. K. VAN DENBURG, JR., *India Correspondent, McGraw-Hill World News*

FINANCIALLY SURFEITED, India's huge cotton division of its textile industry stands at an important crossroads facing the problems posed by terribly obsolete equipment, the threat of a rising synthetics development, a complicated price-cost structure that may take a long time to resolve, diminishing production, and problems associated with government control.

After six years of war production, the mill owners were in the best economic situation in their history, thanks to generous depreciation and reserve funds set aside while their plants hummed in an artificial, competition-free era. Now, they must find a way to apply those funds so as to assure prosperity in a world far short of textiles. But, at present, shortages of machinery, currency regulations, and a confusion of problems stand in their way.

THE CURRENT PICTURE. As of last fall (latest available statistics) India had 417 mills with a combined total of 9,466,098 spindles and 190,601 looms operating. At that time they employed 509,788 workers, consumed 4,908,314 bales of cotton in producing 1,643,000,000 lb. of yarn and 1,182,000,000 lb. of cloth. After deducting exports of 600,000,000 yd. and government and military requirements of 850,000,000 yd. there was left 4,350,000,000 yd. for domestic consumption. Added to this was a handloom output of 1,600,000,000 yd., which, plus imports, gave a total of 6,095,000,000 yd. for domestic use; or only 15.1 yd. per capita, compared with a potential consumption estimated at 25 yd. per capita.

Although prices have been cut many times during the war by government order, cloth still costs about twice what it did prewar. As part of conversion to peacetime production, manufacturers are asking a slight increase, asserting that they cannot produce the coarser cloth which the government has given them as a quota unless the almost nonexistant spread between manufacturing costs and ceiling prices are wider. Wages, however, have not kept pace with increased production costs, especially in rural areas where the great base for mass consumption lies. Indeed, it appears doubtful that the country can absorb, at current prices, the wartime production for the armed forces plus the output of the vast expansion program the government plans. Economists like Prof. Gyand Chand, Indian representative in the International Monetary Funds & Research Div., regard controlled deflation as a national necessity if the country's industrial output high-price levels are to be brought in line with the low national income level.

Following wartime prosperity, the doldrum period began last fall. The slowdown was not due to any lack of demand. But the 48-hr. week was dropped for a 40-hr. week a year ago, strikes cut into production, and mill owners were loath to operate their obsolete equipment at top speed—both to conserve it as long as possible and because they felt that the coarser cloths which the government has stressed had an uneconomical price ceiling.

India's New Mills

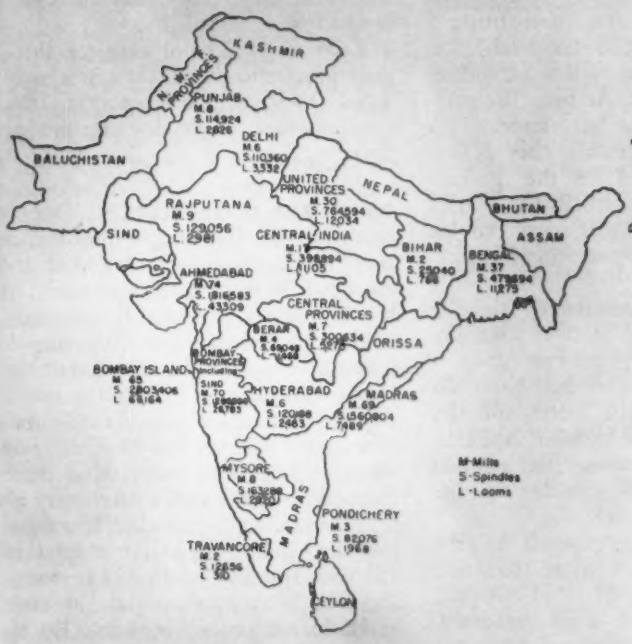
Province	No. of mills	Spindles
Bombay	24	352,000
Madras	16	325,000
Bengal	12	264,000
United Provinces	15	437,000
Punjab	9	213,000
Bihar	6	151,000
Central Provinces and Berar	4	119,000
Orissa	3	75,000
Sind	4	100,000
Princely States	32	708,000
Total	125	2,744,000

TABLE I. The program for expanded cloth production calls for construction of the mills listed above. Because of the Madras shift in policy to a Gandhian program of handweaving and spinning, the quota which was to have been allowed it will be redistributed among other areas.

rely on intensive development of hand spinning and hand weaving. One area of Madras is said to be typical—in this there are 170 villages, a population of 305,000, 26,459 hand-spinning units, and 2,950 handlooms which produce 1,201,000 sq. yd. annually. Madras has worked out all the details of this "Khadi Scheme" and with improved hand machinery and organized training courses is following the precepts of Mahatma Gandhi.

It is to be assumed that the rising tide of industrialization in India will eventually turn the handcrafts of the country to products not so well duplicated by machine as common cotton cloth. And in so doing, the standard of living for the country as a whole will be raised and the market for more and more goods will be fostered. Already two rayon plants have been built and a third is under way. Research is being undertaken on an organized basis. Cotton agriculture is being improved. Plans are shaping for a textile-machinery industry, and this is being carefully surveyed in recognition of the fact that this machinery must be every bit as good as British and American in order of hold local business after the first rush of expansion passes. For some years, India will be a fertile market for American equipment and American technical know-how. Already many large propositions have been put up to American firms with varying degrees of acceptance. Like any market, the field in India will be productive of future business largely in proportion to the extent of cultivation given it now.

With this brief background, the following report from the McGraw-Hill World News correspondent in India will build the details of the current Indian picture.—William B. Dall, *Managing Editor*, TEXTILE WORLD.



India's states and provinces with mills and machinery as of 1945

Locations of proposed new mills and machinery to be added by 1951

Manufacturers are blaming government price ceilings for the major role in the slump, pointing out that there has been no revision since November, 1945, despite more or less steady increases in cotton costs (especially in "under the counter" sales). The tendency has been to shift to production of finer counts of cloth where the price margin is more favorable. Result has been a jump in the price of long-staple raw cotton and a fall in the market for Indian-grown short-staple. Although the manufacturers' representatives have been engaged in prolonged conversations with the government regarding a new price policy, there has been no action.

Beside the price element, several physical facts enter into the increasing shortage. Mill working hours were reduced, and there was no move to work the looms on an overtime-pay basis. Double shifts have been suggested; but several factors have prevented this, including curtailed power supply. In addition, there has been a sharply-increased rate of absenteeism due to the communal riots and to a steady wave of strikes and walkouts.

INDIAN CONSUMER IS HIT. Unless something is done to remedy the situation immediately, economists see a tough time ahead for the Indian consumer. If the mills are not speeded up to something like their 1945 tempo, both mill-cloth and handloom (which depends to a large degree on mill yarn) production will not only fall far short of needs, but will furnish India with something like 4,500,000,000 yd. of cloth for 1947—or about 11 yd. per capita compared with the prewar 16 yd. and the estimated need for 25 yd. Lately the joint industry-government committee ruled that mills increase the coarseness of their yarns by 10% and banned 60s to 80s filling yarn entirely.

Meanwhile, the textile industry is expected to lose its long-enjoyed tariff protection. The Indian Tariff Board has recommended to government that the world-wide textile shortage, the impressive financial situation of the Indian textile industry, and the great need for textile imports combine to do away with the need for any further protection. It points out that the estimated gap between demand and production is on the order of 2,000,000,000 yd. annually and adds that the

Comparative cost per yard of mill cloth (gray) and handwoven cloth (gray)

Yarn Counts	Mill cloth	Handlooms using mill yarns	Handlooms using handspun yarns
20s	5½ annas (11¢)	9½ annas (19¢)	1 rupee, 3 annas (39¢)
30s	5 annas (10¢)	9¼ annas (18¾¢)	1 rupee, 3⅜ annas (40¢)
40s	6 annas (12¢)	9¼ annas (18¢)	1 rupee, 6 annas (45¢)

TABLE II. Comparative costs per yard of mill- and handwoven cloth as presented in the report by Sir Victor Sassoon. Mill costs are based on standard production figures; handloom prices are based on a 1942 study by the Madras Textile Institute and have been doubled to allow for current levels.

India's Rayon Imports

	Rayon yarn (lb.)	Rayon piece goods (yd.)
1943-44	215,918	130,589
1944-45	930,339	431,133
1945-46	1,789,999	2,940,813

TABLE III. The need for local rayon is indicated by the above import figures. The 1945-46 zoom indicates the Indian clothing famine. Under the cloth-rationing program in Bombay Presidency, for instance, domestic-produced cloth is rationed but imported fabrics (notably rayons) are ration-free.

projected expansion of the industry is likely to take many years in view of the dearth of textile machinery throughout the world.

Two things are significant about the tariff board's announcement. First it has not provoked a single important criticism from textile sources; second, on the basis of other cases acted on recently, it appears that the board's decision is usually adopted 100% by the government.

MACHINERY SHORTAGE. The shortage of textile machinery, meanwhile, is receiving increasing attention. In the face of glum reports that orders placed abroad have scant chance of fulfilment before 1950 or 1951, the government has taken pains to stress the fact that it has come to regard textile machinery as one item where would-be purchasers will have an "open field." It has asserted that it is not its policy to restrict orders to the sterling area, and warned that all import licenses on which orders have not been placed by the end of June, 1947, would be invalidated and turned over to persons who would push purchases more actively.

What would be done with more equipment, even if it were available, is a moot point right now. The Central Government quite a while ago urged the mill-owners to institute a three-shift program so that production could be stepped up without resorting to new equipment. At first, the mill-owners demurred; but faced with steadily declining profits, they at last have come around to the government's way of thought. But now they are ready to start and have run up against provincial government restrictions.

In Bombay Presidency, this is especially true; and it is of vital importance since Bombay Presidency is the location of roughly half the mills and two-thirds of the cotton spindles in India. Dominated by labor interests, the Bombay government has banned three-shift production. Some of the reasons given include:

1. Workers are "exposed to the temptation" to work more than one shift;

2. After-midnight work adversely affects the health and efficiency of the worker;

3. Three-shift production would involve import of additional workers for whom no adequate housing exists;

4. Three-shift operation would create the problem of finding alternate employment for workers discharged when the day comes that three-shift production is curtailed;

5. Workers do not care for three-shift production; and, if it were instituted, there is bound to be labor trouble which would decrease production.

EQUIPMENT IS OBSOLETE. One of the roots of the textile problem is India's existing equipment. For the most part it is outdated and worn. At the recent annual meeting of shareholders of the Sholapur Weaving & Spinning Co., for example, Chairman H. C. Bhabba pointed up the necessity for immediate plant modernization by referring to the 1936 meeting when it had been noted that more than 50% of the mill's machinery already was over 60 years old. He warned that the mill, which has a total of 101,980 spindles and 2,234 looms, must be brought up-to-date at once or be forced out of business. By all reports, much the same condition obtains throughout the industry.

Nevertheless, despite this situation, the government has chosen to favor plant expansion and establishment of new mills over replacement of present equipment, through its import licensing and other powers. In addition, it has decided to disregard the advice of the Textile Postwar Planning Committee and to allow imports of second-hand machinery where it can be shown it has a reasonable period of service ahead. In addition, it will not allow the scrapping of any equipment which has been replaced, refusing to allow any machinery, no matter how obsolete, to go out of production.

Important to U. S. manufacturers of textile machinery is the decision that imports from outside the sterling area will be allowed only in cases where it can be proved that the product will be appreciably cheaper, or better, or be delivered far earlier than

Progress of Indian Cotton Mills

Year ending Aug. 31	Number of mills	Number of spindles installed	Number of looms installed	Average No. of hands employed	Approximate quantity of cotton consumed (Bales of 392 lb.)
		(Figures in thousands)			
1932	339	9,506	186	403	2,911
1934	352	9,613	194	385	2,704
1936	379	9,857	200	418	3,110
1938	380	10,020	200	438	3,663
1939	389	10,059	201	441	3,812
1940	388	10,058	200	430	3,680
1941	390	9,961	199	460	4,251
1942	396	10,026	200	480	4,740
1943	401	10,130	201	503	4,890
1944	405	10,197	202	504	4,843
1945	417	10,238	202	510	4,909

TABLE IV. Changes in Indian cotton-mill statistics over 1932-45 period shows 23% rise in mills, 7¾% rise in spindles.

the Empire product. With world prices universally high and delivery problems so great, "proof" is pretty difficult to show.

Delivery of an order for 12,000 spindles placed with Reiter (Switzerland) by the recently-formed Cannanore Spinning & Weaving Mills, Ltd., was expected to be completed last month. The order was placed in April, 1945; but start of production against it was held up nine months by sterling-pool restrictions. Total value of the equipment is approximately $350,000, which the mill reports, is 40 to 50% below current prices of comparable U. S. and British machinery.

Because of the acknowledged difficulty in obtaining machinery, the government has scaled down its 1951 goal from 7,200,000,000 yd. to 6,500,000,000 yd., or an increase of 1,700,000,000 yd., which would jack up the per-capita domestic production to about 18 yd. Of this total, only 510,000,000 yd. would be in fine cloth (40s and above) and 1,190,000,000 yd. in coarse cloth. To produce it will require an additional 1,250,000 spindles for fine counts and 1,500,000 spindles for coarse counts. It is in pursuit of this program that the government decided on its ban against scrapping of present plant equipment.

PROPOSED NEW MILLS. One hundred and twenty-five new cotton textile mills with a combined total spindlage of 2,744,000 are called for under the program for expanded cloth production, according to the Department of Industries & Supplies. The location and size of these plants are shown in Table I.

MADRAS' HAND OPERATION. Madras has maintained its position with regard to banning future textile-mill expansion in favor of the handloom despite a mounting torrent of criticism from financial and industrial circles. Meanwhile, there has been released a critical study of the comparative costs of handloom vs. mill production in India which indicates the price Madras may have to pay for its step.

Prepared by Sir Victor Sassoon, Indian texitle magnate, the study asserts that with a sound cooperative marketing system, handloom fabric in certain counts might compete on a basis of equality with mill cloth. The big "but" in this picture, however, is that this handloom industry must continue in the 8-hr., 6-annas-a-day payment pattern set up by the All-India Spinners Association which has the blessing of Mahatma Gandhi. And 6 annas a day is the equivalent of 12¢, which leaves the handloom worker little in the way of purchasing power to contribute to India's national income. A breakdown of price comparisons from Sassoon's report appears in Table II.

"Dressed for the Occasion?" is what "The Illustrated Weekly of India" asked in this cartoon which shows Madras getting a head start but hardly in the clothing to permit successful competition with the streamlined modernization of other provinces.

Despite the spread between mill and handloom prices, Sir Victor asserted that institution of large-scale cooperatives which would procure yarn for the weavers at wholesale levels and deliver ready-sized beams and cones might cut this differential down considerably.

Meanwhile, to implement its Khadi policy, Madras has instituted a rationing system under which each adult resident is allowed 12 yd. of mill cloth a year and each child 6 yd.

TOP CAPITAL FLOTATION. Textile expansion, both in the form of new mills and the modernization of existing equipment, gave that industry first place among all industrial activities in the flotation of new capital issues for the ten months ended July, 1946. Latest development in the reorganization of the Shree Karan Singh Woolen Mills, Ltd., through the sale of $2,250,000 worth of shares to finance enlargement of its mills in Kashmir State. Another development is announced by the independent kingdom of Nepal in the Himalayas that it is to have its first textile mill. This is a $3,000,000 concern. Shree Pashaputi Textiles, Ltd., organized to run the plant with 25,000 spindles and 500 looms. The Nepalese government is to hold $2,000,000 worth of the stock. Nepal is also putting $150,000,000 into a hydroelectric and irrigation project with a 750-ft. dam and 1,000,000 kw. of cheap electric power.

Jagatjit Cotton Textile Mills, Ltd., with a capitalization of $2,250,000 will set up a mill in Kapurthala State, in the Punjab, which will have 25,000 coarse-yarn spindles and 575 looms. Shree Sadul Textiles, Ltd., capitalized at $3,000,000, will set up a 25,000-spindle coarse-yarn mill near that Rajputana city and expects to spend half that amount on land, buildings, and equipment.

INDIA-BRITISH MACHINES. The Central Government has granted preliminary approval for establishment of a machinery plant in conjunction with Textile Machinery Makers, Ltd., the British combine. The factory, according to Krishmaraj Thackersey, chairman of the Textile Control Board and head of the Indian delegation which concluded the agreement, will be set up in the Bombay area. It is to produce 20,000 spindles per month for the first three years, 30,000 per month the fourth year, and 40,000 per month the fifth year. It will thus play an important role in the Government's program to bring 2,500,000 new spindles

Indian Cotton Crop

Season	Area in thousands of acres	Estimated yield in thousands of bales of 400 lbs. each
1932-33	22,483	4,657
1934-35	23,972	4,857
1936-37	24,759	6,234
1937-38	25,746	5,722
1938-39	23,490	5,051
1939-40	21,580	4,909
1940-41	23,311	6,080
1941-42	24,151	6,223
1942-43	19,203	4,702
1943-44	21,086	5,259
1944-45	14,803	3,543

TABLE V. Indian cotton crop has fluctuated without much trend during last 12 yr., though recent years average downward.

into production in India in the next five years and permit replacement of some 8,000,000 worn-out spindles now in use. The $4,500,000 concern will allot some $1,200,000 in shares to the British combine, of which a total of $780,000 will be turned over free in consideration of patent rights, jigs, tools, and patterns.

To assist in the plan, the government has agreed to turn over to the new company a Bombay war-surplus machinery plant which will be used as the nucleus of the factory. Members of the Indian delegation have indicated that the concern will be more-or-less "closed," with capital raised from the industry on the basis of present size of the operating mills.

The industry already has placed orders for about $50,000,000 worth of equipment with British firms, but it is estimated that another $300,000,000 worth is needed to rehabilitate and modernize existing plants and to meet India's postwar needs.

From Australia comes news that a syndicate of Indian and Australian businessmen have organized the Indo-Australian Engineer Co., Ltd., at Sydney which will manufacture cotton-textile machinery for export to India. Directors include Sir Bertram Stevens, formerly Australian representative on the Eastern Group Supply Council at New Delhi, and Ram Ratan Gupta, director-in-chief of a group of British-owned Indian industries.

RESEARCH. A cotton-textile research institute is to be set up by the Cotton Textile Fund Committee at a cost of about $1,500,000 to carry on extensive fundamental and applied research in all branches of the industry. In its early stages, however, the institute will be assigned the investigation and development of techniques in the mechanical processing of cotton and allied fibers. Expected to be located in the Bombay area, the institute will be administered by the committee under government surveillance. Its executive head will make a survey trip to textile research centers in the United States and Great Britain.

The export problem is a bone of contention between government and industry. Exports have been running about 600,000,000 yd. for several years, mostly in the form of finer cloth woven of longer-staple cotton. The decision to hold down on finer cloth in the expansion program is based on the belief that production should shoot for domestic needs first (i.e., coarse cloth) and that there will be a postwar slackening in domestic purchasing power.

Even this small proportion of exports will continue to be important, however. Cotton textiles offer India a wedge into a greater world-trade position. Indeed, Sir Victor Sassoon has asserted it was his belief that India should build an export market for her cotton textiles even at the cost of having to import some, temporarily, to meet her own needs. It would be much easier to cut down imports later on, he said, than to try to shoulder into the export picture after world trade has settled into a pattern. Further, famine-ridden India can offer textiles to her neighbor countries in exchange for food, as in the case of Siam which now is supplying India with rice in return for piece goods and blankets.

SYNTHETICS. On the threshold of development in India, the synthetics division of the industry may yet upset that country's textile traditions. India is rich in both hydroelectric power and coal. Labor is cheap. Imports of cellulose need continue only until a pulp industry goes to work on the vast forest tracts. With Japan out of the picture, informed opinion is most enthusiastic and work has begun.

Industrialized Hyderabad State is the site of one such development—Sirsilk, Ltd., with an authorized capitalization of approximately $15,000,000. The plant will produce rayon "at the present state mostly by the acetate process." Initial output is scheduled for five tons a day with provision in design and layout for early expansion to ten tons a day. The plant provides for the manufacture of acetic acid and acetone, for recovery of the chemicals, and also for knitting, weaving, bleaching, and dyeing. Equipment is being purchased from Lansil, Ltd., of Lancashire, England, at a price reported to be in the neighborhood of $4,000,000. Lansil is to receive Sirsilk stock totaling approximately $500,000.

Another Indian State, Travancore, has begun the construction of a rayon plant. Early last year, that state floated a joint-stock company, with a capital of 150,000,000 rupees for executing the plan.

In the rayon plant to be erected at Kalyan near Bombay, Tata interests are playing an important role; and Skenandoa Rayon Corp., Utica, N. Y., will supply technical assistance. Lockwood Greene Engineers, Inc., New York, will act as consulting engineers. The Indian firm, known as National Rayon Corp., has an authorized capital of 100,000,000 rupees, or approximately $30,000,000, of which 35,000,000 rupees is being issued at the present time. Its plans call for the construction of a plant using the viscose process with a capacity of ten tons daily.

Under its agreement with Skenandoa, the new concern is to receive for 10 yr. all technical assistance in the design, construction, and operation of the plant, plus the services of operating experts and information regarding

(Continued on page 270)

Imports of Raw Cotton Into India (Tons)

Year	From USA	From Egypt	From Kenya	Total from all countries
1932-33	45,791	6,447	20,694	84,758
1933-34	8,126	6,068	24,188	42,896
1934-35	1,638	16,911	32,725	60,564
1935-36	10,437	15,484	36,631	76,487
1936-37	927	18,546	35,925	64,988
1937-38	29,186	28,404	47,702	134,451
1938-39	4,580	18,990	56,112	93,374
1939-40	9,204	25,498	32,125	83,665
1940-41	8,704	22,307	31,578	89,082
1941-42	201	34,026	62,676	137,548
1942-43	2	36,399	24,515	87,575
1943-44	.....	43,431	10,860	76,102
1944-45	.....	49,659	30,490	89,717

TABLE VI. India's cotton imports over last 14 yr. show rise of Egyptian importance, decline of quantities from the U. S.

Estimated Per Capita Consumption of Cotton Piece Goods in India

	1942-43	1943-44	1944-45
	(In million yards)		
Net available Indian mills' production (after deducting exports)	3,290	4,410	4,350
Estimated Indian handloom production	1,600	1,600	1,600
Estimated handwoven cloth from hand-spun khadi	160	150	140
Net imports of cotton piece goods	15	1	5
Net quantity of cotton piece goods available for consumption in India	5,065	6,161	6,095
Estimated per capita consumption of cotton piece goods	12.40 yd.	15.2 yd.	15.1 yd.

TABLE VII. Cotton piece-goods situation in India (from M. P. Gandhi's "Indian Cotton-Textile Industry Annual")

SYNTHETICS

Continue Growth and Diversification

HIGHLIGHTS: *New producers enter field — Several new fibers — Fine-denier nylons and nylon tow now being produced — Changes occurring in fiber properties — Parallel tabulation permits quick comparison.*

SIGNIFICANT CHANGES in the field of synthetics, as this entire section will show, are principally caused by continuing growth and diversification. Viscose rayon continues to be the giant of the synthetic fibers, but the gap between continuous-filament viscose and continuous-filament acetate is less broad. The present rate of production of synthetics is at a billion pounds a year; thus 1947 is a significant milestone for synthetics.

Several new producers of synthetics have announced their entrance into the field during the past year: Virginia-Carolina Chemical Co. has an azlon; Lus-Tras Extruded Plastics, Inc., Saran monofilaments, and Carbide & Carbon Chemical Corp. (temporarily, at least), a different type of fiber tentatively called "Vinyon N." The latter differs considerably from previous commercial Vinyon.

Considerable detail concerning the properties of four types of Vinyon N has been tabulated in the chart on the other side of this sheet. There are numerous other types of Vinyon N that can be produced, however; but the four listed seem to be the most promising, and hence many of their properties are given. Although Vinyon N is being produced only in small commercial quantities, it is listed both in the fiber chart and in the table of commercial deniers because of its excellent future prospects. At present Vinyon N is manufactured only by Carbide & Carbon; but it is entirely possible that some other concern may, in the future, produce some of the various types that can be spun.

The parallel listing of properties of the commercial synthetic fibers, first done in the 1945 chart, is being continued because of definite, expressed preference for this form. There are, however, some innovations, such as the use of subdivisions between some of the synthetics for the sake of clarity.

There are also some changes in the properties listed, but these are not of as great significance as the new listings that will be found. As the variety of synthetic fibers continues to increase, easily available information as to the properties of each becomes more and more necessary if fabrics are to be engineered, as is definitely the trend today.

POLICY CHANGE. The year saw a major change in the policy of one synthetics producer. Owens-Corning's Fiberglas is now being offered for sale as yarn for use by textile mills. Heretofore, Fiberglas has been sold either in the form of some type of fabric or in yarn form for particular uses, such as insulation. A new glass-fiber producer, who is just starting, is listed for the first time: Glass Fibers, Inc.

There has been considerable discussion as to whether fibers such as those listed in this special section should be called synthetic or manufactured fibers. TEXTILE WORLD prefers calling them synthetic, since this term has been widely accepted. As the number of types of new fibers continue to grow, it is entirely possible that more than one general classification will be needed; but for the time being, it is felt that the term "synthetic fibers" can be used to cover all those not occurring in nature in usable-fiber form.

Synthetic-fiber production is increasing around the world – even to the extent of rendering some countries relatively independent of the natural fibers, such as cotton, wool, and flax. Many of the new foreign plants are being built by American engineers with American equipment, largely through the services of the internationally known Oscar Kohorn & Co., of New York.

There are some types of synthetic fibers being produced abroad which are not being currently manufactured in the United States: for example, Ardil, Terylene, Perlon, and Rayolanda. The details of these synthetics are not included in the tabulations but if they should become available in quantities in this country in the future, they would be included in later revisions.

There are a great many types of synthetic fibers manufactured in small scale in this country which also have not been included, mainly because they have very specialized uses. Examples are aluminum foil, tinsel, rubber yarn, and slit cellophane. In the 1945 tabulation, synthetic-rubber yarns were included; but they have been dropped in this listing since rubber yarns and threads are now being made of natural rubber, as was predicted in the 1945 survey.

Considerable detail is being given concerning the azlons. "Azlon" is a term which was adopted since the last chart was published to describe the protein-type synthetic fibers such as are manufactured from casein, soybean protein, and peanut protein or a combination of these. One new producer of azlons, Virginia-Carolina, is listed in the table of commercial yarns and fibers, and two more producers are known to be entering this particular field. They are the Drackett Corp., which expects to have an azlon developed by the end of the year, and Sessions, Inc., of Enterprise, Ala.

COMMERCIAL YARNS. On this sheet are listed all the synthetic yarns commercially available. It should be remembered, however, that demand greatly exceeds production that virtually none of the yarns is in plentiful supply. It seems clear that the tight situation will certainly last into next year.

There are some significant changes in this revision of the listing of commercial yarns available. Note, for example, the large number of fine-denier nylon yarns being produced and the listing, for the first time, of nylon staple.

American Viscose Corp. is back with some acetate staple (and a whole new series of brand names). Tennessee Eastman has reported increased production of acetate staple resulting from its new plant expansion.

The textile industry is just now beginning to realize some of the promises that were made during the war years in regard to postwar synthetics. It is entirely conceivable that the next year or two will see greater development in regard to both diversification and poundage increase than in any other time in history.—C. W. BENDER, *Editor-in-Chief.*

Reprints of this chart will be available, so long as the supply lasts, at 25¢ each or 15¢ each for 20 or more. Send requests to TEXTILE WORLD, 330 West 42nd Street, New York 18, N. Y.

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Synthetic Yarns Reach Annual BILLIO

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PRODUCTION OF ITEMS MADE FROM RAYON

(In first quarter of years 1944, 1945, 1946, and 1947)

BROAD-WOVEN GOODS — 1000s of yd.	1944 (1st quarter)	1945 (1st quarter)	1946 (1st quarter)	1947 (1st quarter)
100% filament-rayon fabrics	294,541	275,971	269,044	287,547
Bright viscose taffetas	12,762	9,640	15,025	11,224
Pigment viscose taffetas	22,501	21,668	22,395	20,261
Acetate taffetas	23,327	21,454	21,510	18,303
Cross-dyed taffetas	5,370	5,060	6,884	4,184
Twills	34,890	29,290	29,041	38,675
Satins	38,511	40,837	39,053	45,625
Flat and Canton crepes and failles	22,147	19,218	22,175	23,132
French crepes	19,602	21,761	23,219	29,191
Marquisettes	10,649	11,139	12,116	15,209
Ninons and voiles	9,579	9,537	11,006	11,357
Combination crepes	40,657	36,398	38,899	38,676
All other, incl. parachute fabrics, sheers	48,672	44,128	16,802	31,705
100% spun-rayon fabrics	42,605	44,016	49,958	50,891
Poplins, challis, and bedford cords	7,647	7,652	7,068	4,767
Twills, serges, etc.	16,075	14,752	10,309	7,998
Linen types and flakes	5,901	7,040	7,680	5,297
Plied-yarn fabrics	4,873	4,975	7,184	14,615
All others	8,109	9,595	17,717	18,214
Filament and spun-rayon fabrics	38,049	40,841	46,792	48,367
Fugis	11,382	14,178	16,994	16,922
Shantungs	7,391	7,641	6,593	6,287
All other incl. poplins and failles	19,276	20,022	23,205	25,158
Mixture (51% or more rayon)	37,466	40,891	57,559	63,832
Rayon and wool	6,306	6,644	7,591	10,356
Rayon and cotton	23,240	22,143	36,097	40,129
Rayon and other fibers	7,920	12,104	13,871	13,347
Pile, upholstery, drapery, and tie fabrics	6,982	8,176	10,198	11,942
Estimate to cover mills not reporting	2,961	510	.....	.....
Total rayon broad-woven goods	422,604	416,405	433,551	462,579
Nylon, glass, and other fibers	24,000	6,000	5,403	17,647
KNITTED GOODS — 1000s of doz.				
Women's full-fash. hosiery (doz. pr.) rayon	8,818	9,147	3,332	2,009
Women's full-fash. hosiery (doz. pr.) nylon	.....	.....	6,360	7,310
Women's seamless hosiery (doz. pr.) rayon	1,838	1,090	918	1,069
Women's seamless hosiery (doz. pr.) nylon	.....	.....	552	866
Half-hose and slack socks	12,205	12,755	11,809	12,010

CONSUMPTION OF RAYON

(Filament, except where specified under broad-woven goods)

	1944 (1st quarter)	1945 (1st quarter)	1946 (1st quarter)	1947 (1st quarter)
	(in 1000s of lb.)			
Broad-woven goods—				
Filament	74,600	72,300	82,700	90,800
Spun	.....	25,771	29,882	31,864
Blends and mixtures	.....	4,826	10,226	7,750
Tire cord and fabric	21,100	43,000	53,400	55,800
Narrow-woven goods	3,600	4,300	3,300	3,300
Miscellaneous uses	5,300	3,500	3,400	4,800
Exports	2,600	5,700	3,300	3,500
Hosiery— full-fashioned	8,000	6,900	2,100	1,200
— seamless	3,600	2,700	3,900	4,400
Other knit goods— circular	7,200	7,000	7,800	8,500
— warp knit	7,000	6,600	8,700	9,800

Figures are from WPB, CPA, "Rayon Organon," Dept. of Commerce.

al BILLION-POUND Rate

1947 TABLE OF COMMERCIAL SYNTHETIC Y

CONTINUOUS FILAMENT

Manufacturer	Up to 75 den.	100 to 125 den.	150 to 200 den.	210 to 450 den.	600 den. and up.	Trade-names
VISCOSE RAYON						
American Enka Corp.	75/18, 75/30 75/45	100/40, 100/60 100/100, 125/40	150/40, 150/90	250/60, 300/60	1100/480*bo* 1650/720*bo*	Enka Rayon, Briglo, Periglo, Englo, Tempra(*bo*)
American Viscose Corp.	40/14, 50/14 75/30	100/40, 100/60	150/40, 150/60*m* 150/90	250/120, 300/44 300/120*m*, 450/100	600/100 1100/490*bo* 1150/490*m*	Avisco Dull, Avisco Medium-Strength(*mo*), Avisco Tire Y Avisco High-Strength(*bo*)
Celanese Corp. of Amer. (Tubize Inc.)	75/30*mo*	100/40, 100/60	150/40, 150/60 150/90			Tubize Rayon, Hygram
Delaware Rayon Co.		100/24, 100/44 100/60	150/24, 150/44 150/60, 150/90 200/30, 200/60 200/90	250/120*bo* 275/120*bo* 300/44, 300/60 300/120*bo*		Delray
E. I. du Pont de Nemours & Co., Inc.	50/20*bo*, 75/30	100/40, 100/60 125/40, 125/50	150/60*m*, 150/40 150/90, 200/80 200/55	250/50, 250/120*bo* 300/50, 300/120*m* 450/72, 450/100	600/96, 900/50 900/144 1100/480*bo* 1650/720*bo* 2200/960*bo*	Dupont Rayon, Cordura(*bo*)
Hartford Rayon Corp,				300/44, 360/1	600/20, 600/66	Fetheray, Belastraw, Crystalon
Industrial Rayon Corp.	50/20, 75/30	100/40, 100/60 125/34	150/40*m*, 150/60 150/90, 200/80	250/60, 300/44 300/80, 450/60	1100/480*bo* 1650/720*bo*	Dul-tone, Spunlo, Spun-Black Premier, Tyron(*bo*)
National Rayon Corp.	75/30	100/30	150/50			
New Bedford Rayon Co.			150/40			NewDull, Nubray
North American Rayon Corp.	50/24*mo*, 75/30*m* 75/100*mo*	100/60*m*, 125/42 125/52	150/42*m*, 150/100*m* 200/75	250/46, 250/60*mo* 300/75*m*, 450/75	600/92, 900/150 1100/480*bo*	Narco, High Narco(*mo*), Super Narco(*bo*), Xtra-Du
Skenandoa Rayon Corp.		100/40*m*	150/40, 150/90			Skenandoa Rayon, Veri Dul
Woonsocket Rayon, Inc.			150/48			
ACETATE RAYON						
American Viscose Corp.	45/14, 55/14 75/10	100/28, 120/32 120/36	150/41, 200/60	300/80		Avisco Acetate
Celanese Corp. of Amer. (Tubize Inc.)	30/40*s*, 45/13 55/15,75/20	100/26, 100/40 120/32	150/40, 200/52	300/80		Celanese, Fortisan(*s*)
E. I. du Pont de Nemours & Co., Inc.	55/18, 75/24 75/50	100/40. 120/50	150/50			Acele
Tennessee Eastman Corp.	45/13, 55/20 75/19 75/34, 75/49	100/25, 100/34 120/30, 120/40	150/38, 150/52 200/68	300/75		Koda, Eastman Acetate Ray
CUPRAMMONIUM RAYON						
American Bemberg Corp.	40/30, 50/36 65/45, 75/60	100/74				Bemberg, Matesa
United States Rayon Corp. (*Idle, July, 1947*)				300/100		
NYLON						
E. I. du Pont de Nemours & Co., Inc.	15/1, 20/1, 20/7 20/20, 30/10 30/23, 40/13 40/35, 60/20 70/34, 70/70	100/34	150/68	210/34, 240/12		Nylon (generic)
VINYL RESIN						
American Viscose Corp.	45/54*bo*	120/162*bo*	200/270*bo*	250/216*mo*		Vinyon ST, Vinyon HST(*bo*)
Carbide & Carbon Chemicals Corp.	Unstreteched stabilized from 360 to 420 den. with 20 or 40 filaments. Stretched, Stabilized Type H, Stabilized Type R from 30 to 300 den. with 20 to 340 filaments.					Vinyon N
GLASS	Type ECD— 900-1/0 (200/408), 900-1/2, 450-1/0 (100/204). 450-1/2, 450-1/3, 450-2/0, 450-2/2, 450-3/0, 450-3/2, 450-3/3, 450-3/5, 450-4/0, 450-4/3, 450-4/5.				(Figures are Fiberglas designations; in par-	

FROM RAYON

946, and 1947)

1945 (1st quarter)	1946 (1st quarter)	1947 (1st quarter)
275,971	269,044	287,547
9,640	15,025	11,224
21,668	22,395	20,261
21,454	21,510	18,303
5,060	6,884	4,184
29,290	29,041	38,675
40,837	39,053	45,625
19,218	22,175	23,132
21,761	23,219	29,191
11,139	12,116	15,209
9,537	11,006	11,357
36,398	38,899	38,676
44,128	16,802	31,705
44,016	49,958	50,891
7,652	7,068	4,767
14,752	10,309	7,998
7,040	7,680	5,297
4,975	7,184	14,615
9,595	17,717	18,214
40,841	46,792	48,367
14,178	16,994	16,922
7,641	6,593	6,287
20,022	23,205	25,158
40,891	57,559	63,832
6,644	7,591	10,356
22,143	36,097	40,129
12,104	13,871	13,347
8,176	10,198	11,942
510	.....	.....
416,405	433,551	462,579
6,000	5,403	17,647
9,147	3,332	2,009
.....	6,360	7,310
1,090	918	1,069
.....	552	866
12,755	11,809	12,010

RAYON

road-woven goods)

1945 (1st quarter)	1946 (1st quarter)	1947 (1st quarter)
(in 1000s of lb.)		
72,300	82,700	90,800
25,771	29,882	31,864
4,826	10,226	7,750
43,000	53,400	55,800
4,300	3,300	3,300
3,500	3,400	4,800
5,700	3,300	3,500
6,900	2,100	1,200
2,700	3,900	4,400
7,000	7,800	8,500
6,600	8,700	9,800

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1947 TABLE OF COMMERCIAL SY

CONTINUOUS FILAMENT

Manufacturer	Up to 75 den.	100 to 125 den.	150 to 200 den.	210 to 450 den.	6
VISCOSE RAYON					
American Enka Corp.	75/18, 75/30 75/45	100/40, 100/60 100/100, 125/40	150/40, 150/90	250/60, 300/60	
American Viscose Corp.	40/14, 50/14 75/30	100/40, 100/60	150/40, 150/60*m* 150/90	250/120, 300/44 300/120*m*, 450/100	
Celanese Corp. of Amer. (Tubize Inc.)	75/30*mo*	100/40, 100/60	150/40, 150/60 150/90		
Delaware Rayon Co.		100/24, 100/44 100/60	150/24, 150/44 150/60, 150/90 200/30, 200/60 200/90	250/120*bo* 275/120*bo* 300/44, 300/60 300/120*bo*	
E. I. du Pont de Nemours & Co., Inc.	50/20*bo*, 75/30	100/40, 100/60 125/40, 125/50	150/60*m*, 150/40 150/90, 200/80 200/55	250/50, 250/120*bo* 300/50, 300/120*m* 450/72, 450/100	6
Hartford Rayon Corp,				300/44, 360/1	6
Industrial Rayon Corp.	50/20, 75/30	100/40, 100/60 125/34	150/40*m*, 150/60 150/90, 200/80	250/60, 300/44 300/80, 450/60	
National Rayon Corp.	75/30	100/30	150/50		
New Bedford Rayon Co.			150/40		
North American Rayon Corp.	50/24*mo*, 75/30*m* 75/100*mo*	100/60*m*, 125/42 125/52	150/42*m*, 150/100*m* 200/75	250/46, 250/60*mo* 300/75*m*, 450/75	6
Skenandoa Rayon Corp.		100/40*m*	150/40, 150/90		
Woonsocket Rayon, Inc.			150/48		
ACETATE RAYON					
American Viscose Corp.	45/14, 55/14 75/10	100/28, 120/32 120/36	150/41, 200/60	300/80	
Celanese Corp. of Amer. (Tubize Inc.)	30/40*s*, 45/13 55/15, 75/20	100/26, 100/40 120/32	150/40, 200/52	300/80	
E. I. du Pont de Nemours & Co., Inc.	55/18, 75/24 75/50	100/40. 120/50	150/50		
Tennessee Eastman Corp.	45/13, 55/20 75/19 75/34, 75/49	100/25, 100/34 120/30, 120/40	150/38, 150/52 200/68	300/75	
CUPRAMMONIUM RAYON					
American Bemberg Corp.	40/30, 50/36 65/45, 75/60	100/74			
United States Rayon Corp. (*Idle, July, 1947*)				300/100	
NYLON					
E. I. du Pont de Nemours & Co., Inc.	15/1, 20/1, 20/7 20/20, 30/10 30/23, 40/13 40/35, 60/20 70/34, 70/70	100/34	150/68	210/34, 240/12	
VINYL RESIN					
American Viscose Corp.	45/54*bo*	120/162*bo*	200/270*bo*	250/216*mo*	
Carbide & Carbon Chemicals Corp.	Unstreteched stabilized from 360 to 420 den. with 20 or 40 filaments. Stretched, Stabilized Type H, Stabilized Type R from 30 to 300 den. with 20 to 340 filaments.				
GLASS	Type ECD— 900-1/0 (200/408), 900-1/2, 450-1/0 (100/204). 450-1/2, 450-1/3, 450-2/0, 450-2/2, 450-3/0, 450-3/2, 450-3/3, 450-3/5, 450-4/0, 450-4/3, 450-4/5.				(Fig des

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SYNTHETIC YARNS AND FIBERS

	600 den. and up.	Trade-names
0	1100/480*bo* 1650/720*bo*	Enka Rayon, Briglo, Periglo, Englo, Tempra(*bo*)
44 100	600/100 1100/490*bo* 1150/490*m*	Avisco Dull, Avisco Medium-Strength(*mo*), Avisco Tire Yarn, Avisco High-Strength(*bo*)
		Tubize Rayon, Hygram
0		Delray
0*bo* 0*m* 00	600/96, 900/50 900/144 1100/480*bo* 1650/720*bo* 2200/960*bo*	Dupont Rayon, Cordura(*bo*)
1	600/20, 600/66	Fetheray, Belastraw, Crystalon
4 0	1100/480*bo* 1650/720*bo*	Dul-tone, Spunlo, Spun-Black, Premier, Tyron(*bo*)
		NewDull, Nubray
0*mo* 75	600/92, 900/150 1100/480*bo*	Narco, High Narco(*mo*), Super Narco(*bo*), Xtra-Dul
		Skenandoa Rayon, Veri Dul
		Avisco Acetate
		Celanese, Fortisan(*s*)
		Acele
		Koda, Eastman Acetate Rayon
		Bemberg, Matesa
12		Nylon (generic)
		Vinyon ST, Vinyon HST(*bo*)
nts.		Vinyon N
5.	(Figures are Fiberglas designations; in par-	

STAPLE

Manufacturer	Deniers and Lengths (*Deniers given first in units and decimals followed by lengths in inches and fractions.*)
VISCOSE RAYON	
American Viscose Corp.	Avisco Bright Regular: 1.5-1, 1.5-1½, 1.5-1 9/16, 1.5-2, 1.5-4½, 3-1, 3-1 9/16, 5.5-1, 5.5-1½ to 2¾, 5.5-3½ to 6, 5.5-5 to 7. Avisco Bright Crimped: 3-1½ to 2¾ 5.5-1 9/16, 5.5-1½, to 2¾. Avisco Dull Regular: 1.5-1 9/16, 1.5-2, 3-1 9/16, 3-2, 3-2½, 5.5.1¾, 5.5-1½ to 2¾, 5.5-2, 5.5-3½ to 5. Avisco Dull Crimped: 1.5-1 9/16, 3-1 9/16, 3-2, 3-1½ to 2¾, 5.5-3½ to 6. Avisco Extra-Strength Bright: 1-1 9/16, 1.25-1¾, 1.25-2¼, 1.5-1 9/16. 1.5-2.
E. I. du Pont de Nemours & Co.	Bright: 1.5-1½, 3-1½, 5.5-1, 5.5-2. Dull: 1.5-1½, 3-1½, 3-2, 3-2½, 3-4, 5.5-2 5.5-2½ 5.5-4.
ACETATE RAYON	
American Viscose Corp.	Avisco Acetate Staple.
Celanese Corp. of Amer.	Celanese Lanese: 3, 5.5, 8, 12 den. in lengths 1½ to 2 in.
E. I. du Pont de Nemours & Co.	Acele Dull, cut to length for spinning system.
Tennessee Eastman Corp.	Teca Bright , Dull: 3, 5, 8, 12, 16, and 20 den. cut to length for spinning system to be used.
NYLON	
E. I. du Pont de Nemours & Co.	Bright and Semi-dull: 1.5, 3, 6, 10, and 15 den. cut to length for spinning system.
VINYL RESIN	
American Viscose Corp.	Vinyon HH: 5 den., 1 to 5 in. (unstretched).
GLASS	
Owens-Corning Fiberglas Corp.	Designations are for yarns. Type CSE: 12.5/1 (12,500 yd. per lb.), 12.5/2 (2-ply), 44/2-R (reinforced only), 25/2. Type ESE: 70/2-R, 50/1-R, 50/2-R, 40/1-R 40/2-R, 31/1, 31/2, 25/1, 25/2. 19/1, 19/2, 12.5/1, 12.5/2, 10/1, 10/2, 8.4/1 8.4/2. 6.2/1, 6.2/2. Type ESG: 12/1, 8/1, 6/1, 5/1, 4/1, 2.8/1, 1.4/1.
AZLON	
Aralac, Inc.	Equivalent of 50s, 60s, 70s wool (7, 5, and 3 den. respectively) in lengths ½ in. to 6 in. in ¼-in. gradations. Also 15-micron staple (theoretical 110s wool-- 1¾-den.).
Virginia-Carolina Chemical Corp.	Vicara: Various denier sizes and staple lengths available in limited quantities.

CONTINUOUS-FILAMENT TOW

Manufacturer	Luster, Deniers, and Sizes

Synthetic Yarns Reach Annual BILLIO

HIGHLIGHTS: *Rayon and other synthetics now outweigh all other fibers together, except for cotton, in the American industry — Achievement made in about 30 yr. as an accepted division of the industry — Much new capacity will come into field in 1948 — Many new foreign mills — Rayon prices up over the last year but still below cotton.*

A BILLION POUNDS is a lot of fiber. In the synthetic-yarn industry, 1947 will be remembered through history as the year when American production crossed that mark and went up into the realm of ten figures. Rayon and the other synthetics now outweigh all the other textile fibers used in the American industry put together, except for cotton. With a total world production of about two billion pounds, synthetics have passed most of the fibers regarded since before the pyramids as staples and necessities; and they are a very close competitor with wool for second place to cotton in the world-wide field. Synthetics were a test-tube baby in 1884, but their active history on an industrial basis goes back only little more than 30 yr. American production is now at its all-time peak; world production is still 20% under its peak of 1941.

Hand-in-hand with production achievements, the rayons and other synthetics have made a great price record. After nearly 5 yr. of price stability, rayon advanced a modest 25% in the months following removal of price controls last winter. A typical cotton yarn advanced 45% in the same period. Nylon was actually reduced in price.

STILL CHEAPEST FIBER. A year ago, this survey commented on the fact that rayon was then the cheapest of all the textile fibers (barring the cordage group), whereas only 7 yr. before, rayon staple had been three times the price of raw cotton. Today, staple is still under raw cotton without considering its lower loss in waste. Filament rayon at present is back to its 1932 price level, but in that year it was higher priced than raw wool and about ten times the price of raw cotton. Today, filament rayon is about half the price of raw wool and only twice the price of raw cotton. Agriculture is being pampered as regards prices, while the toughened sinews of industry are working daily toward new efficiencies and better values in industrially produced synthetic yarns.

As was true a year ago, the synthetics are moving on what is virtually an allotment basis. All that is available for delivery is taken up, so there is not yet the full transfer of business to synthetics which might be possible if more production was available. Currently, there are at least three new plants under construction, and substantial expansion is under way in at least four more.

The productive capacity which will be added during the next twelve months (most of it in 1948) will make possible a new record in 1948 and permit a production rate before the end of that year at least 25% greater than the one now current. At the same time, there will be fruition of the rayon-plant-building program in numerous overseas countries, not to mention a greater degree of restoration in the war-ravaged countries which may well shoot the 1948 world production up to its best prewar figure.

Those who like day-dreaming may start to calculate when the synthetics will overtake cotton in volume. The United States textile industry has been using cotton lately at the rate of almost five billion pounds per year. If the two fibers eventually meet at a point about half way between them, it will be necessary for the synthetics group to triple its present plant equipment. At the recent rate of expansion, that would take at least 20 to 25 yr.

STAPLE IMPORTS MOUNT. To turn to something more immediate, there has been heavy importation of rayon staple during the last 12 months. Figures for the first six months of 1947 showing imports of about 24,000,000 lb. are the largest ever recorded in any like period. They are over 20% of the domestic output in that same period. Belgium, the Netherlands, Norway, Sweden, and Switzerland have be the chief sources of this supply. Fro England and Italy, the entries have far been small, though they were amo the leading sources prewar. Americ filament-rayon exports have been d clining slowly, although there is st good foreign demand for fabrics ma therefrom. The future picture, ho ever, is one foreseen 2 yr. ago when was said that the time would co when new foreign plants would supp local markets which had been buyi from us and would have an availab surplus to ship into our home mark So far, the United States has not fac much pressure of yarn or fiber fr the low-wage countries, but ultimat that condition may have to be reckon with.

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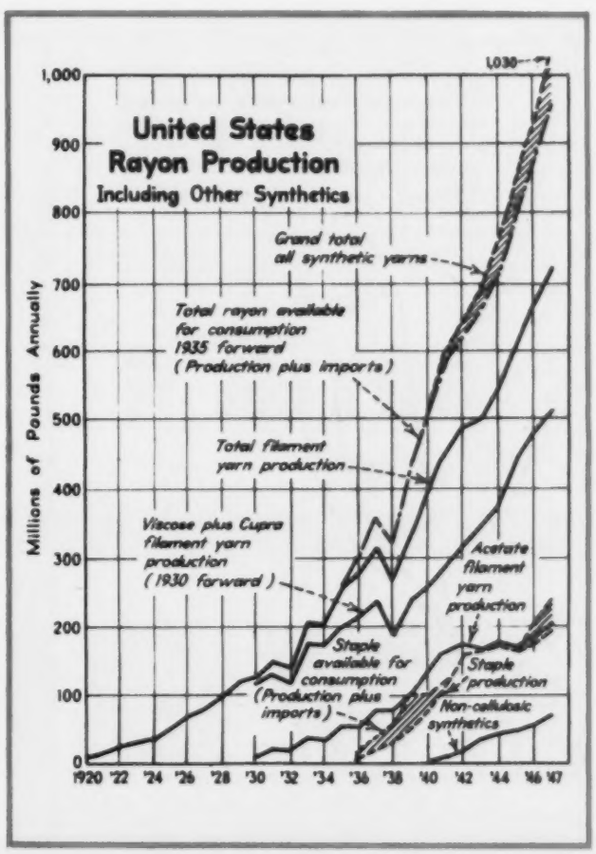

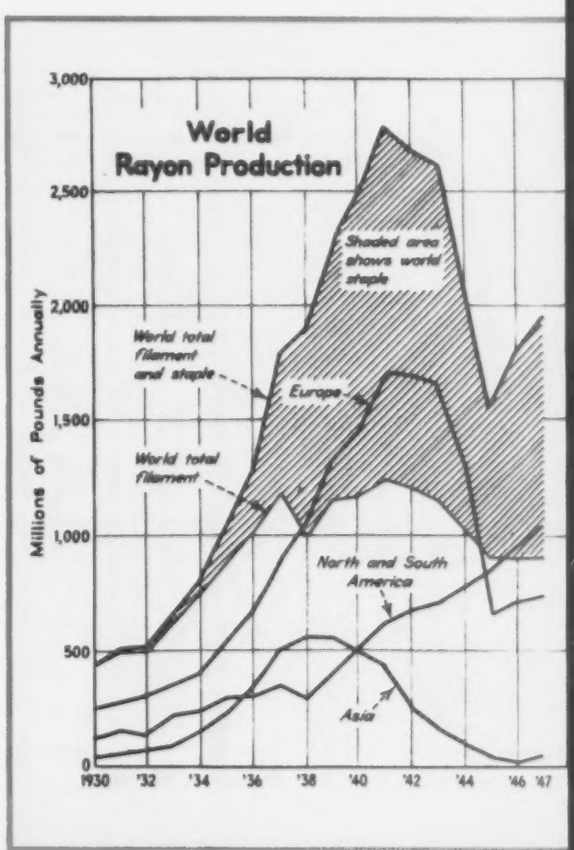

al BILLION-POUND Rate

Sweden, and Switzerland have been the chief sources of this supply. From England and Italy, the entries have so far been small, though they were among the leading sources prewar. American filament-rayon exports have been declining slowly, although there is still good foreign demand for fabrics made therefrom. The future picture, however, is one foreseen 2 yr. ago when it was said that the time would come when new foreign plants would supply local markets which had been buying from us and would have an available surplus to ship into our home market. So far, the United States has not faced much pressure of yarn or fiber from the low-wage countries, but ultimately that condition may have to be reckoned with.

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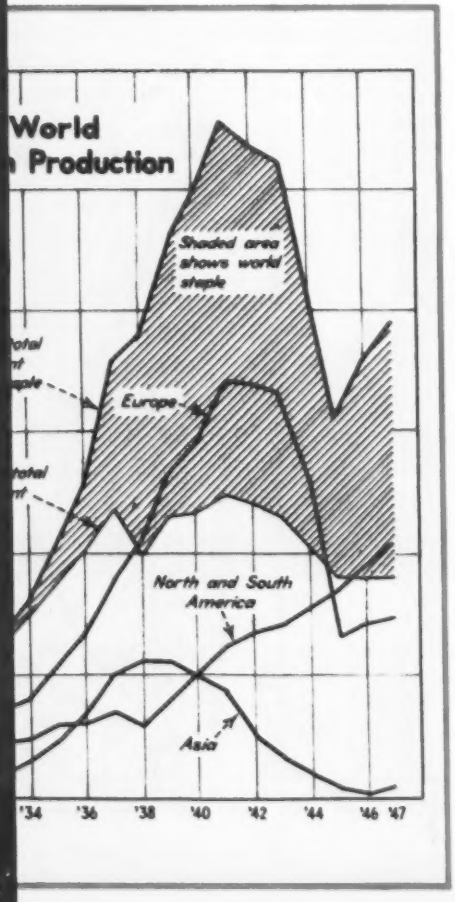

PRODUCTION INCREASES. At home, the greatest actual increase in production will be in viscose staple. According to one authority, the expansions now under way figure out as giving 6% more viscose filament yarn and 27% more viscose staple. Acetate will be increased even more percentagewise, though this figures slightly less in poundage because the amount of production on which the percentage is figured is substantially below viscose. Acetate-filament capacity is said to be expanding by 41% and acetate staple may be tripled. The actual production figures for the first half of 1947 as given by *Rayon Organon* show increases over the first half of 1946 of about 6¾% in filament yarn, both viscose and acetate; and of 10¾% in staple. Viscose staple is up 8¾% by an amount of 5,800,000 lb., while acetate staple is up nearly 17%, with a poundage gain of 3,700,000 lb. This reflects the expected marked production increase in acetate staple referred to above. The acetate picture does not come out so well as it might in the first six months because of a sharp curtailment in June due to a strike. Rayon stocks at the end of June were up slightly although still small, being equivalent in total to the average production of one week.

The trend in rayon consumption in this country is obviously upward in most fields. It is, of course, downward in full-fashioned hosiery, slightly off in narrow woven goods, and stabilizing in tire-cord use. All-filament-rayon broadwoven fabrics have gained 8% in volume, with twills and satins showing up prominently. All-spun-rayon fabrics have been about on even keel; but there has been a 10% gain in spun-rayon mixtures with cotton and wool, the former being the more important.

NON-CELLULOSICS. The non-cellulosic synthetic fibers which entered the textile field in a very small way as early as 1935 are now up to a substantial total, and several of them are growing rapidly. The Dept. of Agriculture gives the following figures as consumption of synthetic fibers other than rayon: 1940, 4,471,000 lb; 1941, 11,663,000; 1942, 23,743,000; 1943, 37,200,000; 1944, 47,368,000; 1945, 49,292,000; 1946, 53,329,000. The department states that these figures include nylon, Aralac, Vinyon, Fiberglas, and Saran (as a textile fiber). Based on other available information regarding production, these figures seem to be on the low side.

The trend in all of the above-mentioned yarns and fibers is toward greater volume. Doubtless, the 1947 record will be 35% ahead of 1946, as several new production units are coming into operation. Nylon, in particular, is rushing ahead with new facilities coming into production this year at an existing plant and a whole new plant likely to be ready by the end of next year. Standard & Poor's Corp. states in one of its industrial surveys that nylon capacity will reach 70,000,000 lb. by the end of 1948. Nylon has received most of its publicity as a women's hosiery yarn, but actually it has numerous relatively untapped markets in woven fabrics. Nylon staple, also, is believed by some to be on the threshold of extensive use because of the desirable qualities it seems to lend when mixed with rayon and/or the natural fibers. The Vinyons are on the rise, with many uses in electrical insulation, shower-curtains, bathing suits, waterproof clothing, filters, etc. which are just at the beginning of their possibilities. Glass fibers are sufficiently attractive to draw new firms into this field despite the head start of one large company. Protein fibers, or the azlons, had been somewhat of a disappointment in regard to growth, but they are now coming at the market from many sides – peanuts, corn, keratin, and soy beans are vying with the established casein as a raw material. Other types of non-cellulosic fibers may soon have to be reckoned with. The two most important seem to be the two using acrylonitrile (Vinyon N and Fiber A) and the British discovery, Terylene.

Prices on newer synthetics are trending downward due to the magnification of production which tends to cut unit cost. Nylon is a good example of this trend, for it was reduced in price last February at the time when the rayons were being advanced. – W. B. Dall, *Managing Editor.*

Carbide & Carbon Chemicals Corp.	Unstreteched stabilized from 360 to 420 den. with 20 or 40 filaments. Stretched, Stabilized Type H, Stabilized Type R from 30 to 300 den. with 20 to 340 filaments.	Vinyon N
GLASS		
Owens-Corning Fiberglas Corp.	Type ECD— 900-1/0 (200/408), 900-1/2, 450-1/0 (100/204). 450-1/2, 450-1/3, 450-2/0, 450-2/2, 450-3/0, 450-3/2, 450-3/3, 450-3/5, 450-4/0, 450-4/3, 450-4/5. Type ECE— 225-1/0 (50/204), 225-1/2, 225-1/3, 225-2/0, 225-2/2, 225-3/0, 225-3/2, 225-3/3, 225-4/3. Type ECG— 150-1/0 (500 den.), 150-1/2, 150-1/3, 150-2/2, 150-3/2, 150-3/3, 150-3/4. (Figures are Fiberglas designations; in parentheses are approximate deniers and filaments.)	Fiberglas
Glass Fibers, Inc.	450-1/0, 450-1/2, 450-1/3, 450-2/2, 450-3/2, 450-3/3, 450-4/3, 450-4/5.	
VINYLIDENE CHLORIDE		
Firestone Industrial Products Co.	Monofilaments in diameters of 0.008, 0.012, 0.015, 0.02, 0.03, 0.05, 0.06, 0.07, 0.08 in. Also rattan-like strips.	Velon
Lus-Trus Extruded Plastics, Inc.	Monofilaments in diameters of 0.012, 0.015, 0.02, 0.025, 0.03, 0.035, 0.04, 0.045, 0.05 in. Also rattan-like strips.	Saran
The National Plastic Products Co.	Monofilaments in diameters of 0.005 to 0.05 in. Also rattan-like strips.	Saran
The Visking Corp., Preston Div.	Monofilaments in diameters of 0.008, 0.01, 0.012, 0.015, 0.02, 0.025, 0.03, 0.035, 0.04, 0.05, 0.06, 0.07, 0.08 in.	Viskord
PLEXON		
Plexon, Inc.	Variety of base yarns and 21 coating formulas in approximately 120 colors. Standard sizes (diameter in inches) 0.015, 0.02, 0.03, 0.045, 0.065.	Plexon

mo Medium-tenacity only
ho High-tenacity only
m Medium-tenacity and regular
h High-tenacity and regular
s Saponified

Much Still Promised for NEW SYNTHETICS

HIGHLIGHTS: *Only few of possible synthetic fibers have commercial possibilities — Some spring from plastics — Regional laboratories encourage development, particularly of azlons — New class uses acrylonitrile.*

THOUSANDS upon thousands of different types of synthetic fibers can be produced, but it is becoming quite clear that a combination of more desirable properties can be found principally in those fibers formed by extremely long-chain molecules. The number of new fibers which have distinct commercial possibilities is only a tiny fraction of the total that can be produced in the laboratory.

It is well known that virtually any materials that can be formed into sheets, such as plastics, can also be formed into fibers; but this does not mean that the fibers will be commercially useful. The objection to many of the plastics is that they do not stand heat very well, or that they are not particularly strong. With a notable exception of nylon, the trend has been from plastic to fiber; and so one naturally looks to plastics as a possible source of new synthetics.

Vinylidene-chloride yarns, which sprang from plastics, are well known in monofilament form; and, already, experimental production of multifilament yarns has been achieved. Fabrics made from multifilament vinylidene-chloride yarns were displayed over a year ago, although commercial production has not yet been started.

Polyethylene has already been produced in monofilaments which were knit and woven experimentally. It has interesting properties, particularly light weight and fair strength, which would make it of interest for nautical ropes; but polyethylene must still be considered as being experimental. The low price of polyethylene resin is a factor in its favor.

NEW CLASS. There is promise of an entirely new class of fibers based on acrylonitrile. Du Pont's Fiber A, about which much has been rumored but nothing officially released, is said to be in this category; and acrylonitrile is a minor component of Vinyon N. It is indicated that acrylonitrile fiber, in both properties and price, would fall somewhere between rayon and nylon.

Polystyrene, which is another material that has been made into a multifilament yarn, has an extremely fine filament size (three microns). In fiber form, it seems to have more potentialities for thermal-insulation bats than for textile yarns. Dow Chemical Co. announced its interest in polystyrene fiber, which it called "Polyfibre."

B. F. Goodrich Co. has produced some polyvinyl-chloride filaments which it felt would have possible use in screens and other types of material that can use rather coarse monofilaments. But commercial production has not started.

During the war, some polyvinyl-alcohol fibers were produced because of their solubility in water. (They figured in parachutes for laying mines at sea.) In this property, they are somewhat like the alginate fibers being produced experimentally in England. The alginate fibers were used, in one application, as a carrier for a fragile worsted yarn. In finishing, the carrier was washed out to leave an extremely light wool cloth.

STIMULATION. Work at Southern Regional Research Laboratory has stimulated interest in possibilities of peanut-protein fiber, which SRRL calls Sarelon. Aralac, Drackett, and Sessions are three companies reported to be interested in peanut-protein fiber; and peanut protein is reported to be a component of the new Virginia-Carolina azlon which it calls Vicara.

Unquestionably, the work on protein fibers by all four of the regional laboratories of the United States Department of Agriculture is stimulating interest in new types (see TEXTILE WORLD, September, 1946).

In addition to all of the current producers of synthetic fibers and the chemical companies which have a direct interest in them, many others are toying with, or seriously endeavoring to develop, new fibers. The Iron & Steel Institute has shown some interest in fine fibers made of stainless steel, a producer of glass insulating materials is looking toward producing textile yarns, Monsanto Chemical Co. is reported to be experimenting with a new synthetic yarn.

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	Saran
05, 0.06, 0.07, 0.08 in.	Viskord
	Plexon

b High-tenacity and regular
s Saponified

CONTINUOUS-FILAMENT TOW

Manufacturer	Luster, Deniers, and Sizes
VISCOSE RAYON	
American Viscose Corp.	Avisco Bright Tow: 1.5 den., 435,000 total den. 3.0 den., 186,000 total den. Avisco Dull Tow: 3.0 den., 186,000 total den.
E. I. du Pont de Nemours & Co.	Tow, Bright: 1.5 den., type 29, 4,400 total den. 1.5 den., type 756, 113,400 total den. 3.0 den., type 539, 161,712 total den. 5.5 den., type 302, 166,584 total den. 10.0 den., type 192, 192,000 total den. Tow, Dull: 1.5 den., type 756, 113,400 total den. 3.0 den., type 539, 161,712 total den. 5.5 den., type 302, 166,584 total den.
NYLON	
E. I. du Pont de Nemours & Co.	Bright and Semi-dull: 1.5, 3, 6, 10, 15 den. per filament — 55,000 total den.

NTHETICS

new types (see TEXTILE WORLD, September, 1946).

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How to Contact Fiber Producers

Below are addresses at which the various yarn producers can be contacted. Following the publication of the last synthetic-fiber chart, TEXTILE WORLD was deluged with requests for addresses of manufacturers; requests are still being made.

American Bemberg Corp.
261 Fifth Ave., New York 16, N. Y.

American Enka Corp.
260 Madison Ave., New York 16, N. Y.

American Viscose Corp.
350 Fifth Ave., New York 1, N. Y.

Aralac, Inc.
Taftville, Conn.

Carbide & Carbon Chemicals Corp.
30 E. 42nd St., New York 17, N. Y.

Celanese Corp. of America
180 Madison Ave., New York 16, N. Y.

Delaware Rayon Co.
New Castle, Del.

E. I. du Pont de Nemours & Co., Inc.
Wilmington 98, Del.

Firestone Industrial Products Co.
350 Fifth Ave., New York 1, N. Y.

Glass Fibers, Inc.
Waterville, Ohio

Hartford Rayon Corp.
Rocky Hill, Conn.

Industrial Rayon Corp.
500 Fifth Ave., New York 18, N. Y.

Lus-Trus Extruded Plastics, Inc.
200 Hill St., Ann Arbor, Mich.

The National Plastic Products Co.
Odenton, Md.

National Rayon Corp.
1294 W. 70th St., Cleveland, Ohio

New Bedford Rayon Co.
New Bedford, Mass.

North American Rayon Corp.
261 Fifth Ave., New York 16, N. Y.

Owens-Corning Fiberglas Corp.
Toledo 1, Ohio

Plexon, Inc.
419 Fourth Ave., New York 16, N. Y.

Skenandoa Rayon Corp.
Utica 2, N. Y.

Tubize, Inc. (See Celanese)
180 Madison Ave., New York 16, N. Y.

Tennessee Eastman Corp.
A. M. Tenney Associates, Inc.
10 E. 40th St., New York 16, N. Y.

United States Rayon Corp.
Brooklyn, Conn.

The Visking Corp., Preston Div.
P. O. Box 1410, Terre Haute, Ind.

Virginia-Carolina Chemical Corp.
Carteret, N. J.

Woonsocket Rayon, Inc.
Woonsocket, R. I.

1947 Revision

TEXTILE WORLD'S

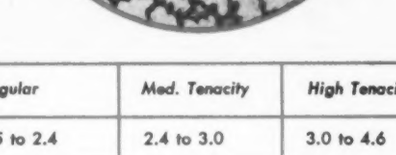
Microscopic Appearance

These cross-sections not only tell much concerning some properties of the fiber but are often useful for identifications. Not all photographs are the same magnification due to differences in filament sizes.

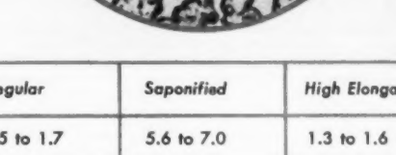
The viscose, acetate, cupra, Azlon, nylon, and vinylidene chloride cross-sections are courtesy of the Southern Regional Research Laboratory.

RAYON

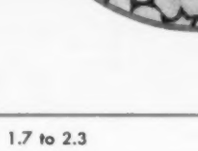
VISCOSE



ACETATE

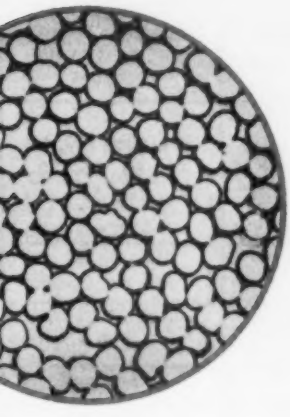
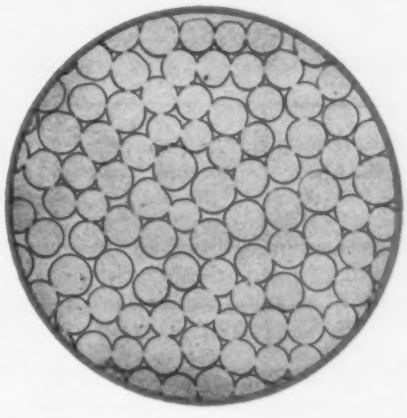


CUP
CUPRAM

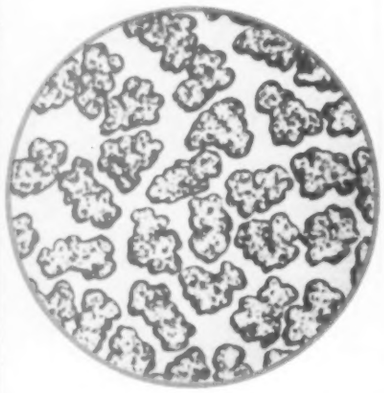
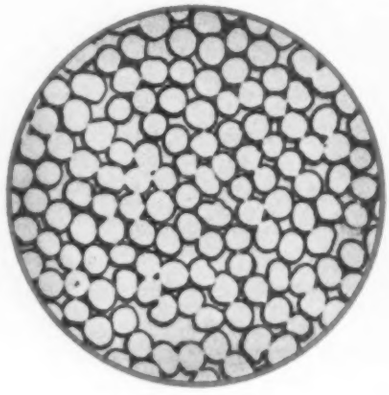
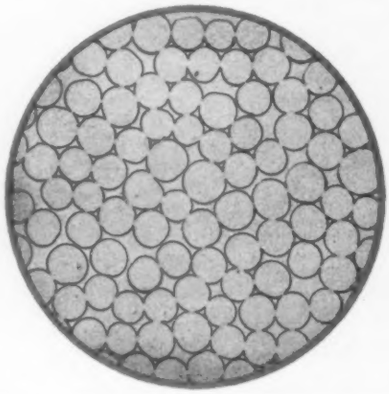
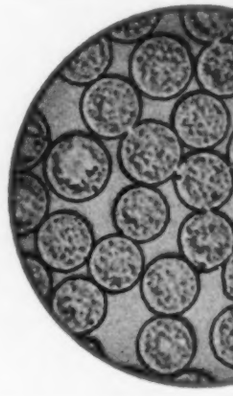


		Viscose: Regular	Viscose: Med. Tenacity	Viscose: High Tenacity	Acetate: Regular	Acetate: Saponified	Acetate: High Elongation	Cupra
Elongation (%)	Std.	1.5 to 2.4	2.4 to 3.0	3.0 to 4.6	1.5 to 1.7	5.6 to 7.0	1.3 to 1.6	1.7 to 2.3
(Std. is 70° F. and 65% r.h.)	Wet	0.7 to 1.2	1.2 to 1.7	1.9 to 3.0	0.8 to 1.2	4.0 to 6.0	0.86 to 0.97	0.95 to 1.25
Tensile Strength (g.p.d.)	Std	15 to 30	12 to 20	9 to 17	23 to 30	6.0 to 6.5	45 to 50	10 to 17
(Std. is 70° F. and 65% r.h.)	Wet	20 to 35	17 to 30	14 to 20	30 to 38	6.0	60 to 70	17 to 33
Elastic Recovery (%)		30 to 74 at 4% 58 at 14%	97 at 2%	70 to 100 at 2%	48 to 65 at 4% 29 at 14%			17% at 75%
Tensile Stress (psi.)		29,000 to 46,000	46,000 to 58,000	58,000 to 88,500	22,000 to 28,000	96,000 to 134,000	22,000	33,000 to 44,500
Average Stiffness (g.p.d.)		11.1	16.6	25.5	5.5	116.6	3.3	15.5
Average Toughness $\left(\frac{g.cm.}{d.cm.}\right)$		0.19	0.21	0.22	0.17	0.21	0.35	0.14
Specific Gravity		1.5 to 1.52			1.32	1.5	1.3	1.52 to 1.54
Regain (Adsorption)		13% at 70° F. and 65% r.h.; 11% is commercial standard.			6% at 70° F. and 65% r.h.; 6½% is commercial std.	9.8%	6%	12.5% at 70° F. and 65 standard.
Water Absorbency		27% at 95%; total retention: 100 to 125%.			14% at 95% r.h.	20% at 95% r.h.	14% at 95% r.h.	27% at 95% r.h.; total
Effect of Heat		Loses strength above 300° F. Decomposes at 350 to 400° F.; does not melt; burns relatively rapidly.			Regular and high elongation are thermoplastic, lose strength above 200 to 220° F.; soften at 400 to 445° F.; fuse at 500° F.; sticking point 350 to 375° F.; burn relatively slowly. Saponified is more nearly like viscose rayon.			Decomposes at above rapidly.
Effect of Age		Slight.			Slight on tensile; none on color.			Slight.
Effect of Sunlight		Loses tensile strength after prolonged exposure, very little discoloration.			Slight on tensile; none on color.			Loses strength on prolo
Effect of Acids		Similar to cotton; hot dilute or cold concentrated disintegrate fiber.			Concentrated solutions of strong acids decompose.			Similar to viscose; hot disintergrate fiber.
Effect of Alkalis		Strong solutions cause swelling and reduce			Strong alkalis saponify into regenerated cellulose			Dilute have little effe

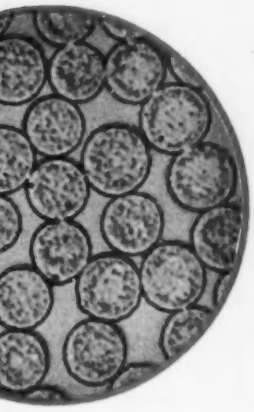
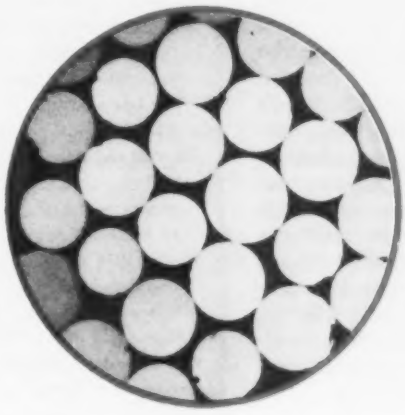
'S SYNTHET

	CUPRA CUPRAMMONIUM	NYLON		AZLON			VINY CHL
							
		Regular	*High Tenacity*	Casein	Soybean	*Peanut*	
		4.5 to 5.5	6.0 to 7.5	0.6 to 0.8	0.6 to 0.7	About 0.6	1.8 to 2.5
		3.6 to 4.7	4.8 to 6.4	0.25 to 0.4	0.2 to 0.35	About 0.22	1.8 to 2.5
		20 to 25	14 to 20	30 to 50	30 to 40	About 14	20 to 30
		21 to 30		85 to 120	60 to 70	About 25	20 to 30
		100% at 8% 91% at 16%		Very little.	Very little.	75-100% from 3% 18-32% from 20%	95% (slow)
4,500		65,000 to 80,000	87,500 to 110,000	10,000 to 13,000	10,000 to 12,000	10,000 to 14,000	40,000 to 55,000
		24	45	2.2	2.2	4.4	20
		0.5	0.45	0.15	0.15	0.42	0.62
		1.14		1.3	1.3	1.3	1.6 to 1.75
° F. and 65% r.h.; 11% is commercial		3.8% at 70° F. and 65% r.h.; 4.5% is commercial standard.		13% at 70° F. and 65% r.h.	12.9% at 70° F. and 65% r.h.	13.5% at 70° F. and 65% r.h.	None.
r.h.; total retention 100 to 125%.		6.1% at 95% r.h.		About 25% at 95% r.h.			Less than 0.1% (surf
at above 300° F.; burns relatively		Melts at 482° F.; yellows slightly at 300° F. when held 5 hr.; damaged at 446° F.		Loses strength above 212° F.; decomposes at 450° F.; relatively slow burning rate.			Resistant up to 170° at 212° F. loses strength; melts at at 350° F.; self-e
		Virtually none.		None.			None.
th on prolonged exposure.		Prolonged exposure decreases tensile strength.		Similar to wool.			Darkens slightly.
scose; hot dilute or cold concentrated ate fiber.		Boiling in 5% hydrochloric acid ultimately causes disintegration; dissolved by formic acid; disintegrated by cold concentrated nitric acid.		Decomposed by strong acids; stable to weak.			Unaffected by most.
little effect; strong solutions cause				Cold or weak have little effect for short period.			

LE WORLD'S SYNTH

RAYON				NYLON		AZL	
ACETATE			CUPRA CUPRAMMONIUM				
							
gular	*Saponified*	*High Elongation*		*Regular*	*High Tenacity*	*Casein*	*Soybean*
5 to 1.7	5.6 to 7.0	1.3 to 1.6	1.7 to 2.3	4.5 to 5.5	6.0 to 7.5	0.6 to 0.8	0.6 to 0.
8 to 1.2	4.0 to 6.0	0.86 to 0.97	0.95 to 1.25	3.6 to 4.7	4.8 to 6.4	0.25 to 0.4	0.2 to 0.
3 to 30	6.0 to 6.5	45 to 50	10 to 17	20 to 25	14 to 20	30 to 50	30 to 4
0 to 38	6.0	60 to 70	17 to 33	21 to 30		85 to 120	60 to 70
8 to 65 at 4% 9 at 14%			17% at 75%	100% at 8% 91% at 16%		Very little.	Very litt
000 to 28,000	96,000 to 134,000	22,000	33,000 to 44,500	65,000 to 80,000	87,500 to 110,000	10,000 to 13,000	10,000 to 1
5	116.6	3.3	15.5	24	45	2.2	2.2
.17	0.21	0.35	0.14	0.5	0.45	0.15	0.15
.32	1.5	1.3	1.52 to 1.54	1.14		1.3	1.3
at 70° F. and 5% r.h.; 6½% is mmercial std.	9.8%	6%	12.5% at 70° F. and 65% r.h.; 11% is commercial standard.	3.8% at 70° F. and 65% r.h.; 4.5% is commercial standard.		13% at 70° F. and 65% r.h.	12.9% at 7 and 65%
4% at 95% r.h.	20% at 95% r.h.	14% at 95% r.h.	27% at 95% r.h.; total retention 100 to 125%.	6.1% at 95% r.h.		About 25% at 95% r.h.	
Regular and high elongation are thermoplastic, lose strength above 200 to 220° F.; soften at 400 to 445° F.; fuse at 500° F.; sticking point 350 to 375° F.; burn relatively slowly. Saponified is more nearly like viscose rayon.			Decomposes at above 300° F.; burns relatively rapidly.	Melts at 482° F.; yellows slightly at 300° F. when held 5 hr.; damaged at 446° F.		Loses strength above 212° 450° F.; relatively slow b	
Slight on tensile; none on color.			Slight.	Virtually none.		None.	
Slight on tensile; none on color.			Loses strength on prolonged exposure.	Prolonged exposure decreases tensile strength.		Similar to wool.	
Concentrated solutions of strong acids decompose.			Similar to viscose; hot dilute or cold concentrated disintergrate fiber.	Boiling in 5% hydrochloric acid ultimately causes disintegration; dissolved by formic acid; disintegrated by cold concentrated nitric acid.		Decomposed by strong acid	

HETIC-FIBE

ZLON		VINYLIDENE CHLORIDE	GLASS	VINY *Trade-mark of Carbide &*	
					
Soybean	Peanut			*Regular (ST)*	*High Te (HS*
0.6 to 0.7	About 0.6	1.8 to 2.5	6.3 to 6.9	2 to 2.8	3.5 to
0.2 to 0.35	About 0.22	1.8 to 2.5	6.0	2 to 2.8	3.5 to
30 to 40	About 14	20 to 30	2 to 3	20 to 35	18 to
60 to 70	About 25	20 to 30	1 to 2	20 to 35	18 to
Very little.	75-100% from 3% 18-32% from 20%	95% (slow)	100%	90% at 80% load	
,000 to 12,000	10,000 to 14,000	40,000 to 55,000	204,000 to 220,000	34,000 to 47,000	60,000 to
2.2	4.4	20	322	7.7	2.4
0.15	0.42	0.62	0.07	3.3	2.7
1.3	1.3	1.6 to 1.75	2.54	1.33 to 1.35	
2.9% at 70° F. and 65% r.h.	13.5% at 70° F. and 65% r.h.	None.	None.	Virtually none.	
% r.h.		Less than 0.1% (surface).	Less than 0.1% (surface).	0.1%	
bove 212° F.; decomposes at vely slow burning rate.		Resistant up to 170° F. and softens at 200° F.; at 212° F. loses approx. 50% of its tensile strength; melts at 240 to 280° F.; decomposes at 350° F.; self-extinguishing.	Will not burn; strength begins to decrease at 600° F. and continues to decline to limiting temperature of about 1,000 to 1,500° F.; softens at near 1,500° F.	Melts at 260° F.; becom 150° F.; softens at a support combustion.	
		None.	None.	None.	
		Darkens slightly.	None.	None.	
strong acids; stable to weak.		Unaffected by most.	Attacked by hydrofluoric and hot phosphoric only.	None,	

BER TABLE

Compiled by C. W. BENDIGO, Editor

VINYL RESINS

VINYON

Trade-mark of Carbide & Carbon Chemical Corp.

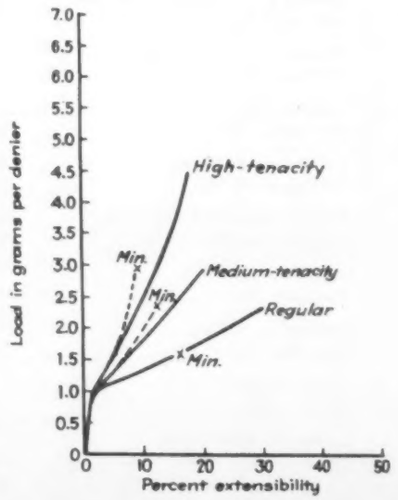
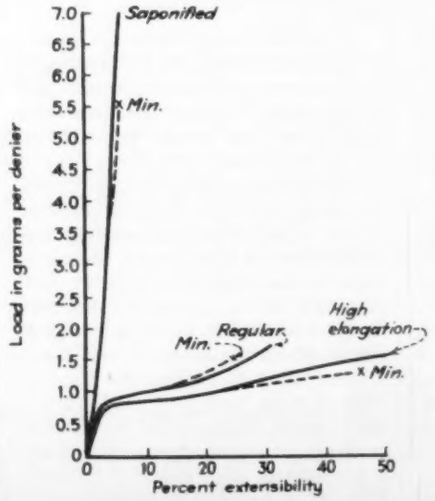
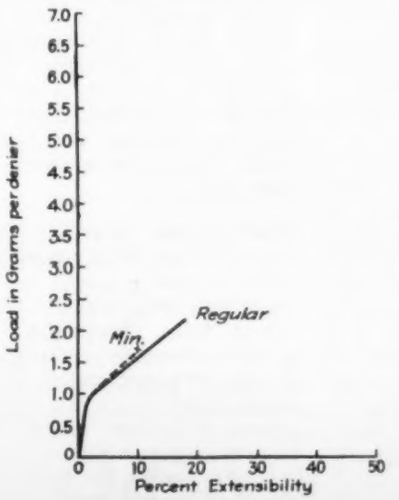
VINYON N

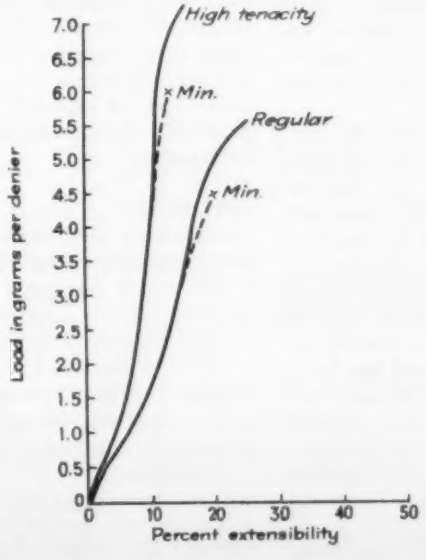
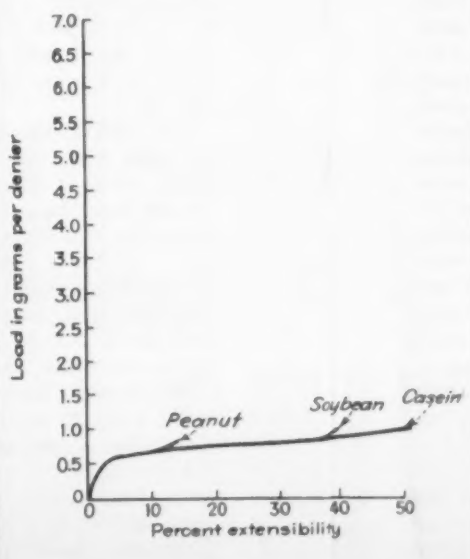
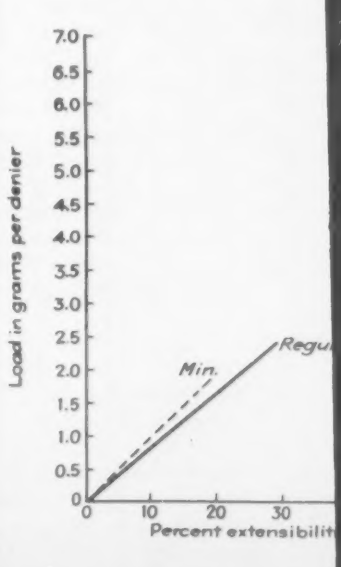
Trade-mark of Carbide & Carbon Chemical Corp.

PLEXON

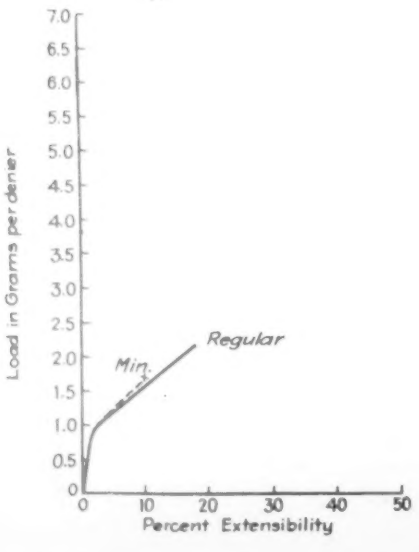
Trade-mark of Plexon, Inc.

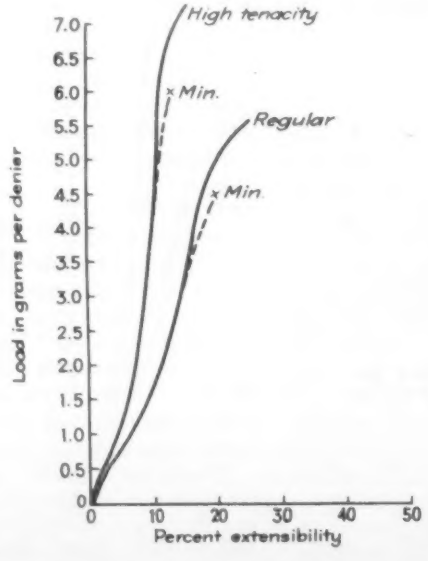
	VINYON			VINYON N				PLEXON
	Regular (ST)	*High Tenacity (HST)*	*Unstretched Staple (HH)*	*Unstretched Stabilized*	*Stretched*	*Stabilized Type H*	*Stabilized Type R*	
	2 to 2.8	3.5 to 4	0.7 to 1.0	0.7 to 0.9	4.2 to 4.5	3.7 to 4.0	3.6 to 3.8	1.5 to 3.0
	2 to 2.8	3.5 to 4	0.7 to 1.0	0.7 to 0.9	4.2 to 4.5	3.7 to 4.0	3.6 to 3.8	1.3 to 2.5
	20 to 35	18 to 20	100 to 120	8 to 10	8.5 to 9.5	21 to 24	25 to 28	Varies with base.
	20 to 35	18 to 20	100 to 120	8 to 10	8.5 to 9.5	21 to 24	25 to 28	Generally high.
	90% at 80% load			100% at 0.5 g.p.d.	76% at 1.5 g.p.d.	100% at 0.5 g.p.d.	100% at 0.5 g.p.d.	Varies with base.
	34,000 to 47,000	60,000 to 68,000	12,000 to 17,000	12,800	75,000	64,500	64,000	Generally high.
	7.7	2.4		20 to 30	49	17	13	
	3.3	2.7		0.18 to 0.32	0.2	0.41	0.48	
	1.33 to 1.35			1.22 to 1.28				
	Virtually none.			0.0 to 0.5%				2 to 5% at 70° F. and 65% r.h.
	0.1%			Close to 1% at up to 95% r.h.				Low.
crease at to limiting 1,500° F.;	Melts at 260° F.; becomes tacky and shrinks at 150° F.; softens at about 170° F.; will not support combustion.			Will not support combustion. Unstretched stabilized shrinks above 275° F.; stretched, above 157° F.; Type H, above 248° F.; and Type R above 275° F. Stretched fuses at 338° F.				Non-inflammable to self-extinguishing (depending on coating); decomposes at 140 to 200° F. (depending on coating).
	None.			Virtually none.				Slight.
	None.			Darkens somewhat after prolonged exposure with some loss in tensile strength.				Slight.
phosphoric	None,			Stretched resistant below 150° F. except to 25% chromic, 70% nitric, and 96% sulphuric. Other three types resistant to practically all; lose strength on exposure to chromic or nitric; decomposed by sulphuric.				Weak, from no effect to slight; strong, from no effect to decomposition (depending on coating).
alkalis and								Weak, from no effect to slight; strong, from no

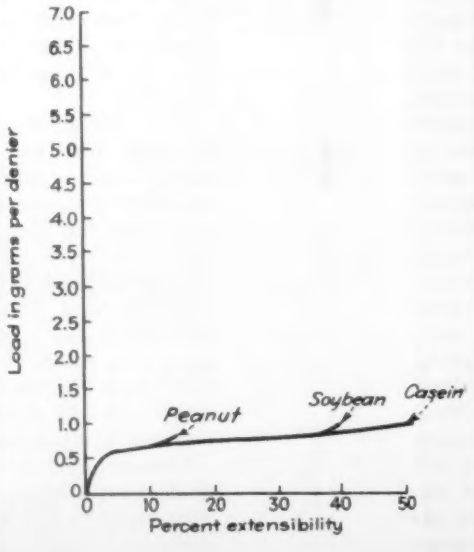
Effect of Acids	Similar to cotton; hot dilute or cold concentrated disintegrate fiber.	Concentrated solutions of strong acids decompose.	Similar to viscose; hot dilute or cold concentrated disintergrate fiber.
Effect of Alkalis	Strong solutions cause swelling and reduce strength.	Strong alkalis saponify into regenerated cellulose.	Dilute have little effect; strong solutions cause swelling, lose of strength, and ultimate disintegration.
Effect of Other Chemicals	Attacked by strong oxidizing agents; not damaged by hypochlorite or peroxide bleaching solutions.	Attacked by strong oxidizing agents; not damaged by hypochlorite or peroxide bleaching solutions; soluble in phenol.	Not attacked by oxidizing agents; not damaged by hypochlorite or peroxide bleaching solution.
Effect of Organic Solvents	Generally insoluble; soluble in cuprammonium solution and some other compounds.	Soluble in acetone, concentrated and glacial acetic acid, some other solvents.	Insoluble; soluble in cuprammonium solutions and some other compounds.
Dyes Used	Same classes as cotton for regular viscose; medium- and high-tenacity are more difficult to dye.	Regular acetate dyed by vat, azoic, and special acetate-rayon dyes; has affinity also for some acid and mordant; all basic dyes; pigment and solvent dyes. Saponified is more difficult to dye (requires more dyestuff); acetate dyes not suitable but some vat and direct are.	Similar to viscose rayon and cotton.
Resistance to Moths	Wholly.	Wholly.	Wholly.
Resistance to Mildew	Attacked.	Highly (discoloration only).	Attacked.
Dielectric Strength	Fair when dry.	3,000 volts per mil.	Fair when dry.
Identification *(In addition to cross-sectioning and stress-strain testing.)*	Does not melt; burns readily with but little ash; insoluble in acetone; does not dissolve (but swells) in ammoniacal copper solution.	Melts before burning, forms hard black ball on tip; soluble in acetone; insoluble in methyl chloride.	Does not melt; burns with but little ash; insoluble in acetone; dissolves in ammoniacal copper solution.
Typical Uses	Yarn used for crepe, voile, and low twists for many woven and knitted fabrics (the only continuous-filament synthetic yarn being creped commercially); hosiery, tire cord. Staple used alone and in blends for dress goods and sports wear; in blends for rugs, blankets, upholstery, house furnishings.	Dress goods, linings, hosiery, underwear, fused fabrics. Staple (often blended) for men's and women's wear, blankets, upholstery, carpets, and for fusing. High-elongation and saponified used for military purposes.	Knitted and woven material for wearing apparel such as dress fabrics, gloves, and hosiery; upholstery and decorative fabrics.
Method of Manufacture	Wood pulp or cotton linters are treated with caustic soda and carbon disulphide. The aged cellulose xanthate is dissolved in caustic soda and forced through spinnerets. Desulphurizing, washing, and bleaching of the yarn follow. Stretching the filaments while in a plastic state produces high-tenacity yarn.	Cotton linters or wood pulp are acetylated with acetate anhydride to form cellulose acetate which, dissolved in acetone, is extruded into warm air to form filaments. High-elongation acetate is produced by a modification of the process; saponified acetate, by a special stretching and saponification process.	Purified cotton linters dissolved in ammoniacal copper-hydroxide solution are extruded through a spinneret, drawn out in a water bath, and acidified.
Typical Stress-Strain Curves			

ed	Boiling in 5% hydrochloric acid ultimately causes disintegration; dissolved by formic acid; disintegrated by cold concentrated nitric acid.	Decomposed by strong acids; stable to weak.	Unaffected by most.
se in-	Substantially inert.	Cold or weak have little effect for short period, prolonged contact causes brittleness; hot or strong alkalis decompose.	Unaffected by most; limited resistanc nia.
ed lu-	Dissolved by phenol, meta-cresol, xylenol, and cresylic acid. Most bleaching materials are somewhat deleterious.	Can be bleached with hydrogen peroxide or sodium disulphite.	Generally good resistance.
nd	Insoluble in alcohols, aldehydes, benzine, carbon disulphide, carbon tetrachloride, halogenated hydrocarbons, ketones, trichlorethylene, gasoline.	Insoluble.	Insoluble in most, but swelled or oxygen-bearing solvents such as cy and dioxan at elevated temperat
	All acid, acetate, pigment, chrome; some direct, vat azoic, basic; few sulphur; mordant with special application.	Dyed by most classes except some direct. Vat dyes unsuitable because of alkali required.	Colored before extrusion.
	Wholly. (Larvae will cut way out if trapped.)	Attacked.	Wholly.
	Wholly. (Material on nylon may be attacked.)	Protected.	Wholly.
	Dielectric constant: 4 at 1,000 cycles at 18% r.h. and 70° F.	400 to 700 volts per mil.	500 volts per mil.
uble per	Melts before burning; insoluble in acetone; soluble in xylenol; soluble in concentrated hydrochloric acid.	Burns with bead; insoluble in acetone and hydrochloric acid; stained orange by conc. HCl; soybean not colored in Morse test, casein colored rose red.	Melts; does not support combustion; acetone; soluble in dioxan.
arel up-	Hosiery, satins, taffetas, marquisettes, ribbons, tapes, webbing, tricot underwear and gloves, laces, nets, threads, ropes, fish lines, tire cords, filter cloths, sail cloth.	Particularly suited for blending with other fibers to make coatings, suitings, dress goods, interlinings, blankets, underwear, socks.	Screening, cords for racquets and t holstery, curtains, filter cloth, shoe bag fabrics.
acal ded ater	Nylon can be made in a number of different ways such as the reaction between a diamine (for example, hexamethylene diamine) and a dicarboxylic acid like adipic acid. In the manufacture of yarn, the polyamide is melted, extruded through a spinneret, and stretched.	Protein is dissolved in an alkaline solution and extruded into an acid bath. The resulting continuous filaments are hardened, set, and cut.	Petroleum and salt are treated to pro ene and chlorine. They are combin vinylidene chloride which is copolym vinyl chloride. The resulting resin is extruded to form filaments which orientated.
50			

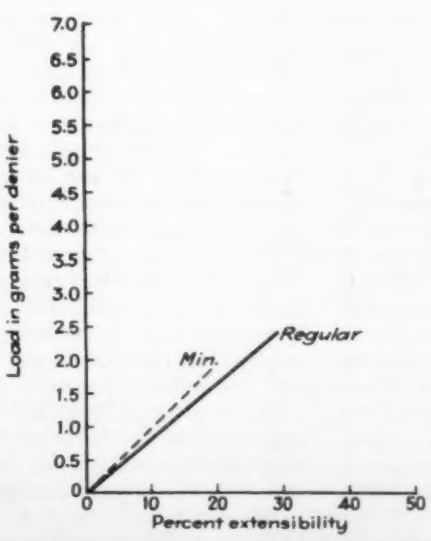
	Similar to viscose; hot dilute or cold concentrated disintergrate fiber.	Boiling in 5% hydrochloric acid ultimately causes disintegration; dissolved by formic acid; disintegrated by cold concentrated nitric acid.	Decomposed by strong acids; stable to weak.
	Dilute have little effect; strong solutions cause swelling, lose of strength, and ultimate disintegration.	Substantially inert.	Cold or weak have little effect for short period, prolonged contact causes brittleness; hot or strong alkalis decompose.
	Not attacked by oxidizing agents; not damaged by hypochlorite or peroxide bleaching solution.	Dissolved by phenol, meta-cresol, xylenol, and cresylic acid. Most bleaching materials are somewhat deleterious.	Can be bleached with hydrogen peroxide or sodium disulphite.
	Insoluble; soluble in cuprammonium solutions and some other compounds.	Insoluble in alcohols, aldehydes, benzine, carbon disulphide, carbon tetrachloride, halogenated hydrocarbons, ketones, trichlorethylene, gasoline.	Insoluble.
	Similar to viscose rayon and cotton.	All acid, acetate, pigment, chrome; some direct, vat azoic, basic; few sulphur; mordant with special application.	Dyed by most classes except some direct. Vat dyes unsuitable because of alkali required.
	Wholly.	Wholly. (Larvae will cut way out if trapped.)	Attacked.
	Attacked.	Wholly. (Material on nylon may be attacked.)	Protected.
	Fair when dry.	Dielectric constant: 4 at 1,000 cycles at 18% r.h. and 70° F.	400 to 700 volts per mil.
	Does not melt; burns with but little ash; insoluble in acetone; dissolves in ammoniacal copper solution.	Melts before burning; insoluble in acetone; soluble in xylenol; soluble in concentrated hydrochloric acid.	Burns with bead; insoluble in acetone and hydrochloric acid; stained orange by conc. HCl; soybean not colored in Morse test, casein colored rose red.
	Knitted and woven material for wearing apparel such as dress fabrics, gloves, and hosiery; upholstery and decorative fabrics.	Hosiery, satins, taffetas, marquisettes, ribbons, tapes, webbing, tricot underwear and gloves, laces, nets, threads, ropes, fish lines, tire cords, filter cloths, sail cloth.	Particularly suited for blending with other fibers to make coatings, suitings, dress goods, interlinings, blankets, underwear, socks.
	Purified cotton linters dissolved in ammoniacal copper-hydroxide solution are extruded through a spinneret, drawn out in a water bath, and acidified.	Nylon can be made in a number of different ways such as the reaction between a diamine (for example, hexamethylene diamine) and a dicarboxylic acid like adipic acid. In the manufacture of yarn, the polyamide is melted, extruded through a spinneret, and stretched.	Protein is dissolved in an alkaline solution and extruded into an acid bath. The resulting continuous filaments are hardened, set, and cut.

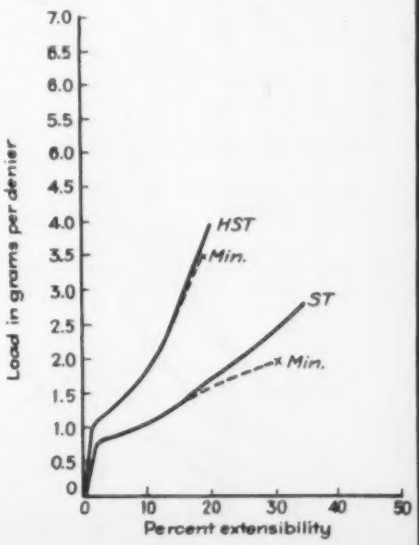




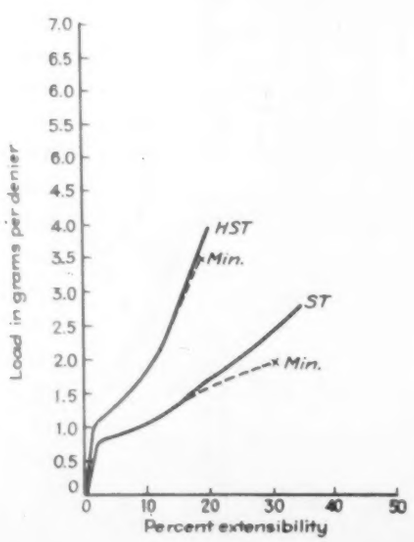


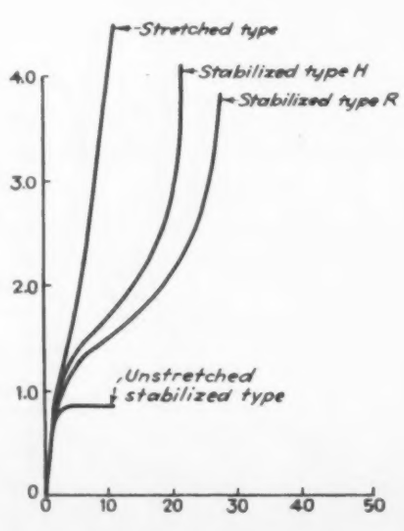
	Unaffected by most.	Attacked by hydrofluoric and hot phosphoric only.	None,
	Unaffected by most; limited resistance to ammonia.	Attacked by hot solutions of weak alkalis and cold solutions of strong alkalis.	None.
	Generally good resistance.	Generally resistant.	Generally resistant.
	Insoluble in most, but swelled or softened by oxygen-bearing solvents such as cyclohexanone and dioxan at elevated temperatures.	Insoluble.	Soluble in ketones and some chlorinated hydrocarbons; swells and softens in ethers, esters, aromatic hydrocarbons, dioxan propylene oxide.
	Colored before extrusion.	Resin-bonded pigments. Special technique utilizing protein film applied during manufacture for vat, direct, acid, and chrome.	Dyed with dispersed dyes with aid of certain swelling agents; solvent methods; pigment dyeing.
	Wholly.	Wholly.	Wholly.
	Wholly.	Not attacked (binder may be, however).	Wholly.
	500 volts per mil.	Excellent.	650 volts per mil. (60 cycle).
	Melts; does not support combustion; insoluble in acetone; soluble in dioxan.	Does not burn.	Softens at relatively low temperature (170° F.); melts before burning; does not support combustion; insoluble in acetone; insoluble in 90% phenol.
	Screening, cords for racquets and the like, upholstery, curtains, filter cloth, shoe and handbag fabrics.	Electrical insulation, plastic reinforcing, fireproof decorative materials, filter cloths.	Filter fabrics, nets and seines, clothing and fabrics for protection against acids and alkalis, fusible shape-retaining fabrics. Staple used as bonding agent in combination with other fibers.
	Petroleum and salt are treated to produce ethylene and chlorine. They are combined to form vinylidene chloride which is copolymerized with vinyl chloride. The resulting resin is melted and extruded to form filaments which are then orientated.	Special-composition glass marbles are melted in an electric furnace which has many minute holes in the base, to form continuous fibers. The fibers are attenuated to the desired size. Staple fibers are attenuated and formed by steam jet.	A copolymer of vinyl chloride and vinyl acetate is dispersed in acetone, filtered, deaerated; then dry-spun by means of extrusion. After standing, the filaments are wet twisted and stretched. Both continuous filament and staple fiber are produced, but in case of staple no stretching is involved.

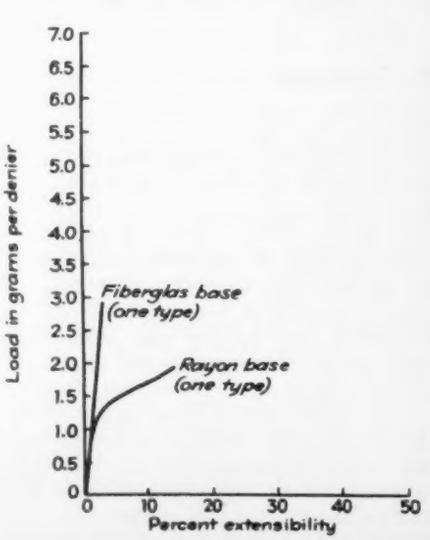




hosphoric	None,	Stretched resistant below 150° F. except to 25% chromic, 70% nitric, and 96% sulphuric. Other three types resistant to practically all; lose strength on exposure to chromic or nitric; decomposed by sulphuric.	Weak, from no effect to slight; strong, from no effect to decomposition (depending on coating).
kalis and	None.	No effect.	Weak, from no effect to slight; strong, from no effect to decomposition (depending on coating).
	Generally resistant.	All weakened by ferric chloride in high concentration.	Can be made resistant to most chemicals, as specified.
	Soluble in ketones and some chlorinated hydrocarbons; swells and softens in ethers, esters, aromatic hydrocarbons, dioxan propylene oxide.	All four types weakened by 5% phenol; stretched dissolved by acetone, and certain other ketones. Other three are merely softened by these solvents.	Coating dissolved by actone, ethyl acetate, and other lacquer solvents (depending on coating.)
que utiliz- anufacture	Dyed with dispersed dyes with aid of certain swelling agents; solvent methods; pigment dyeing.	Acetate, some vat, acid, and other classes for all types. (Stretched dyed at lower temperatures.)	Color generally applied at time of coating, such as with durable pigments.
	Wholly.	Wholly.	Good.
r).	Wholly.	Wholly.	Good.
	650 volts per mil. (60 cycle).		Generally good.
	Softens at relatively low temperature (170° F.); melts before burning; does not support combustion; insoluble in acetone; insoluble in 90% phenol.	None will burn, but all shrink, harden, and become brittle. Stretched dissolves in acetate, unstretched-stabilized type softens considerably; other two types only partially softened.	Visual examination (core of fibers coated with plastic material).
, fireproof	Filter fabrics, nets and seines, clothing and fabrics for protection against acids and alkalis, fusible shape-retaining fabrics. Staple used as bonding agent in combination with other fibers.	Unstretched stabilized: pile fabrics, rugs, felts, rope, some dress goods. Type H: dress goods house furnishings, hosiery, foundation garments, linings. Type R: industrial fabrics (filter), thread, paint-brush bristles. Stretched: fish lines, rope, dress fabrics.	Used in fabrics for handbags, shoes, upholsteries, draperies, fashion accessories, furnishing materials for public places.
re melted ny minute ous fibers. sired size. formed by	A copolymer of vinyl chloride and vinyl acetate is dispersed in acetone, filtered, deaerated; then dry-spun by means of extrusion. After standing, the filaments are wet twisted and stretched. Both continuous filament and staple fiber are produced, but in case of staple no stretching is involved.	A copolymer of vinyl chloride and acrylonitrile is dissolved in acetone, filtered, and then dry spun by means of extrusion. Most types are stretched and twisted, following which they are dimensionally stabilized by additional processes.	Synthetic, cotton, linen, and other yarns are coated with various types of resins of which 21 different formulas are currently employed. Depth of coating can be varied to produce effect desired.







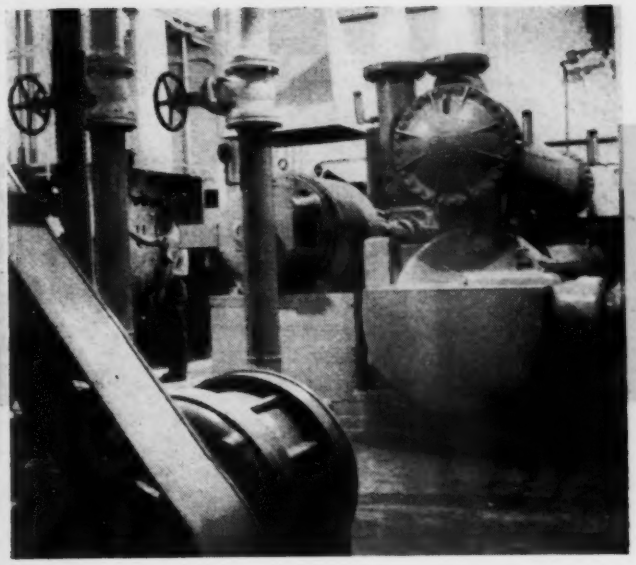


Fig. 1. The Carrier air-conditioning unit, engineered for 60 full-fashioned knitting machines equipped with 5-hp. motors, utilizes a 250-hp. motor driving a centrifugal refrigeration machine. The capacity of the refrigeration machine is 264 tons. In the left background, the author is engaged at the main control panel.

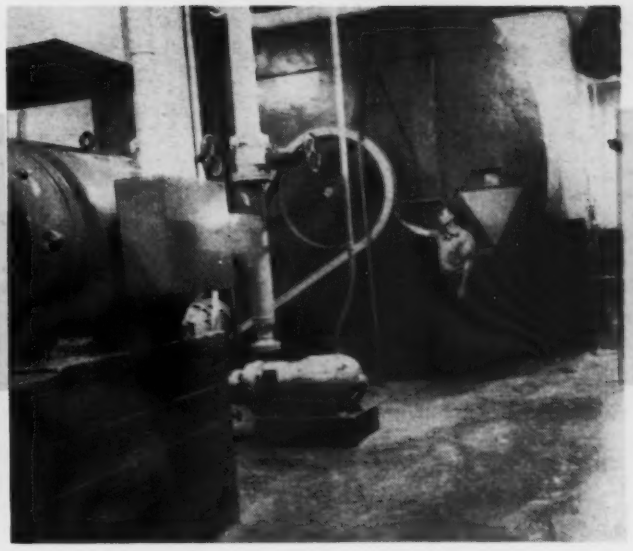


Fig. 2. The sheet-metal inclosure directly behind the author contains the main fan, driven by a 40-hp. motor. This fan delivers 90,000 cu. ft. of air per min. Heating coils, spray, and filters are located in the concrete inclosure in the background behind the fan (not visible in the picture).

Modern Hosiery Mill CONTROLS ITS AIR

HIGHLIGHTS: *Refrigerated air-conditioning system installed at Vanette Hosiery Mills, Dallas, Tex.—A relative humidity of 50% at 80° F. is maintained the year 'round—Stripping of size on nylon yarn has been eliminated.*

By H. B. LE FEAUX

Superintendent, Vanette Hosiery Mills

IT TAKES MORE than modern knitting machines to make a modern full-fashioned hosiery mill. Although such machines are essential, there are many other factors that contribute to the performance of knitting machines at maximum efficiency.

Vanette Hosiery Mills, Dallas, Tex., recognizing the importance of accurate control of humidity and temperature the year 'round, recently installed efficient air-conditioning and refrigeration systems as part of its broad modernization program. Late-model machines used by this mill to knit 15- and 20-den. nylon yarns into 51-gage hose are complicated and operate at high speeds. The working tolerances of the various parts are close, and it is necessary that conditions affecting the yarn be kept as constant as possible.

When the relative humidity in the knitting room rises to a point considerably above 50%, the sizing on the nylon yarn begins to strip off and accumulate on the sinkers, knock-over bits, and needle bars. Such a condition causes broken needles and dropped stitches. The wide narrowing fingers on the new machines are more susceptible to narrowing trouble when sizing accumulates than were the narrowing fingers used on the older machines. Narrowing trouble, of course, results in defective hose.

Menders caused by these conditions have been decreased and the over-all efficiency of the mill increased at Vanette by the installation of the Carrier Corp. conditioning system, which cools and dehumidifies air in summer and heats and humidifies it in winter. It is now possible to maintain a year-round air condition of 50% relative humidity at 80° F. temperature.

CONDITIONING UNIT. The air-conditioning machinery is housed in an

Color Scheme of Departments

Department	Ceiling	Walls	Dado
Engine room Dye room	Dull white	Light yellow	Blue-gray
Knitting Looping Seaming Gray inspection Finishing	High-gloss white	Light green	Blue-gray
Preboarding Boarding	Dull white Dull white	Light green Buff	Blue-gray Rose-wine

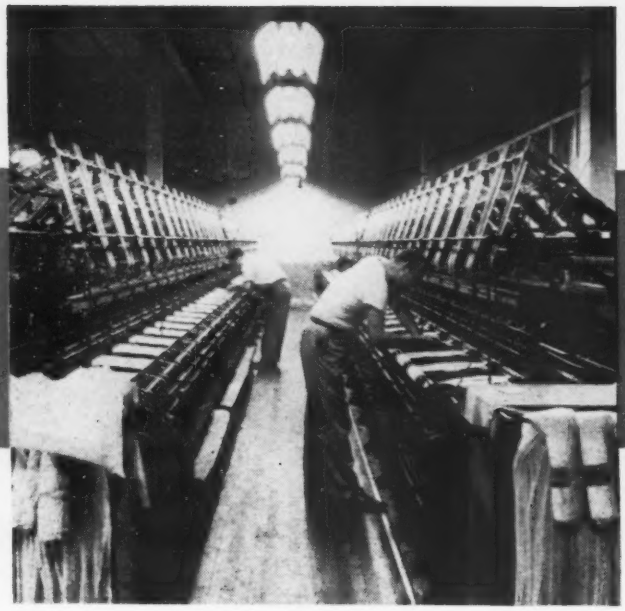


Fig. 3. *Performance of these two 32-section, 51-gage, automatic-welt-turning machines has been materially improved by the close control of atmospheric conditions now possible. Before the air-conditioning system was installed, there was a window in the wall at the end of this alley. This and all other windows in the knitting room were bricked up and monitors were closed.*

Fig. 4. *The author inspects a late-model, 30-section, 51-gage machine. Because of the high operating speeds and the close tolerances of the knitting parts of these machines, constant atmospheric conditions are necessary in order to produce first-quality nylon hose at high efficiency. Wider narrowing bars now being used are more likely to give trouble because of size accumulation.*

engine room, Fig. 1, and consists of a variable-speed, 250-hp. motor driving a centrifugal refrigeration machine of a capacity of 264 tons. Also located in the engine room is a No. 15 fan, driven by a 40-hp. motor, that delivers 90,000 cu. ft. of air per min., Fig. 2. The cooling tower for the condenser water is located on the roof of the mill directly above the engine room.

The main duct, leading from the fan to the knitting room, is 8 ft. wide and 5 ft. in depth. The knitting room has a content of approximately 465,000 cu. ft. and serves as the control point for the air-conditioning system. About 60,000 cu. ft. of air per min. is supplied to this department, giving a complete change of air each 7¾ min.

In the knitting room, the overhead duct runs the entire length of the room and is located in the center of the building. The room measures 208x140 ft. The conditioning unit was engineered for 60 knitting machines, each equipped with a 5-hp. motor.

Minutes required for air changes in the various departments of the mill are:

Fig. 5. *Adequate lighting, color conditioning, and control of atmosphere have yielded good results in the windowless looping department. Although the looping operation does not require constant temperature and humidity, worker comfort is an important factor in looping efficiency.*

Fig. 6. *Operation at high-speed seaming machines has also been aided by air and color conditioning and good lighting. The color scheme in this department, as in most of the manufacturing departments, is: ceiling, high-gloss white enamel; walls, light green; dado, blue-gray.*

Fig. 7. *The gray-inspection department has a change of air each 14 min. Latest-type expansion forms and modern inspection tables are provided the operators in this department. Imperfect hose found by the inspectors are sent back to the knitters on whose machines they were made. The 15- and 20-den. 51-gage hosiery naturally is more difficult to knit without many imperfections.*

Fig. 8. *Effectively air conditioning a preboarding room is a difficult job. Besides the incoming duct overhead at the left, which is provided with vents to blow conditioned air toward each operator, there is also a hot-air-exhaust system operated by a separate motor and fans. An exhaust hood over the front of each machine receives hot air from the machine and the boarding forms.*

	(Min.)
Knitting	7.75
Looping, seaming, and finishing	14.0
Boarding	4.8
Office	8.0
Yarn storage and shipping	9.0

The preboarding and boarding rooms are equipped for spot cooling with vents located in the duct walls directly behind the operators, Fig. 8. Hoods over the fronts of the machines take hot air from the machines and boarding forms when a battery of forms comes from a preboarding machine. This hot air is exhausted from the room by fans driven by a separate motor.

In all the departments where close control of air conditions is essential, windows were bricked up and air-relief dampers installed. Monitors were also closed, and the roof was insulated with 3 in. of cork.

Other phases of the modernization program are fluorescent lighting and color conditioning. The installation of lights has been completed, and the color conditioning, shown on page 129, is now well under way.

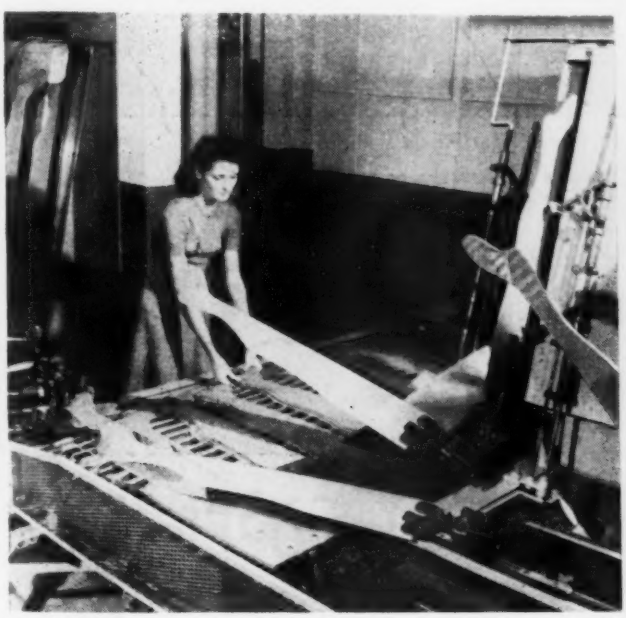


Fig. 9. *Incoming ducts and exhaust hoods are used also in the final boarding room. As in the preboarding room, there is a change of air each 4.8 min. in this department. Machines are painted battleship-gray, the ceiling is dull white, walls are buff, and the dado is rose-wine.*

Fig. 10. *Adequate lighting, worker comfort, and snag-proof tables are featured in the finishing department. Inspection tables are kept as white as possible to aid the operators in spotting defects in the finished hosiery.*

Pictures through courtesy of *Electrified Industry*.

Now Woven Goods Come Clean

SUN TEXTILE LUBRICANTS...

End Spotting Problem in Textile Mill

Oil dripped from the bearings of looms weaving rayon and acetate in a Pennsylvania mill. Oil spots got on the fabrics. Floors became slippery.

A Sun Engineer was invited to study the problem. After considering all the factors involved, he recommended a Sun textile lubricant that is used on looms in a large number of mills. This "Job Proved" oil, when properly applied, clings to bearings and does not drip or fly. It has now been in use in this mill for several years.

Spotting of fabrics has stopped, the management reports. Waste of lubricants has been eliminated, and floors are cleaner and safer.

For every type of modern textile equipment there is a "Job Proved" Sun oil that will help you increase operating efficiency and produce more for less. If you're bothered by oil mist, dripping, spots that won't wash out, rusting or similar textile mill problems, get in touch with your Sun Engineer. Write Department T9.

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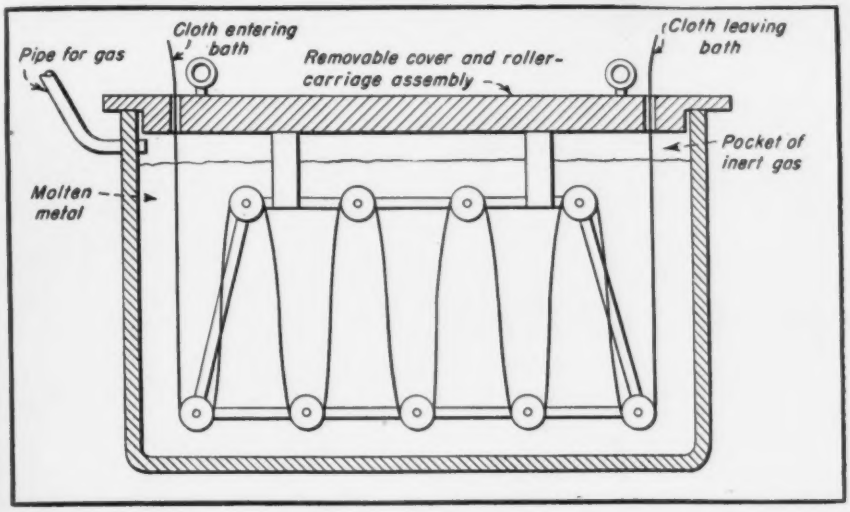

Diagrammatic conception of the molten-metal aftertreating bath. Carrier rolls are mounted on a carriage attached to the cover which can be raised to permit threading. Inert-gas pocket prevents oxidation and burning of metal.

Dyeing Process Uses MOLTEN METAL

HIGHLIGHTS: *Fabric passed through molten-metal bath for aftertreatment—Reaction varied by length of exposure—Oxidation prevented by inert gas—Process economical.*

A HEAT-TREATING PROCESS for carrying out chemical reactions on textiles by passing the material through a molten-metal bath has been developed in Germany. The process is described in a recent report on German textile technology* issued by the Office of Technical Services, U. S. Dept. of Commerce.

The process may be used for heat aftertreatment for developing or fixing prints or dyeings obtained by means of vat or coupling dyestuffs, for enhancing the wear resistance and other properties of fabrics by means of dimethylol urea or formaldehyde, or for creaseproofing or waterproofing fabrics. The bath can also be used to dry most goods, the drying being controlled by duration of immersion.

The fabric is passed over rollers which are set in a molten bath of metal alloy. The rollers are on a carriage unit separate from the bath container to facilitate threading, and either the carriage or the bath is mounted on a platform which can be raised or lowered.

The alloy can be varied to produce temperatures up to 100° C, and the degree of the reaction can be influenced by varying the time of contact between metal and cloth. The metal does not adhere to the fabric. Alloys used are usually lead-bismuth-cadmium, lead-bismuth-tin, or pure metals as lead or tin. Heating of the metal can be done by direct firing or by electric current.

It is claimed that the process is economical as no heating of large quantities of air is involved, and radiation may be reduced to a minimum by insulation and a cover on the bath. Overheating of the material is unlikely as the metal conducts heat away from the fabric, preventing an accumulation; and the air in the fabric acts as insulation. To maintain constant temperature is not difficult.

While in the molten state, the metal forms an oxide film on its surface. To prevent excessive oxidation and burning of the metal, a cover is placed on the vessel holding the metal. Fabric enters through slots in this cover and passes into the metal with a minimum of surface agitation. The use of an inert gas between the surface of the metal and the cover has also been successfully accomplished, according to the report, with virtually complete elimination of oxidation.

* Condensed from *German Technical Developments in Textile Finishing Processes*, compiled by Francis S. Richardson for Office of Technical Services, U. S. Dept. of Commerce. Available from Hobart Publishing Co., Box 4217, Chevy Chase Br., Washington 15, D. C. at $12.50.

SUCCESSFUL APPLICATIONS

The OTS report on the German molten metal aftertreating process cites the following methods which have successfully produced the desired effects:

Examples:

1. A fabric of bleached cotton is printed with the following printing paste:

100 g.	20% paste of the dyestuff No. 1349 (Schultz, Farbstofftabellen, 7th ed.)
290 g.	water
80 g.	glycerol
350 g.	starch-tragacanth thickening
100 g.	caustic soda solution (38° Be.)
80 g.	sodium hydrosulfite
1000 g.	

Directly after printing, the moist goods are passed through a bath of liquid metal having the following composition:

500 g.	lead
300 g.	tin
200 g.	cadmium
1000 g.	

The temperature of the metal bath is maintained at 125° C. The duration of the passage amounts to about 8 to 10 sec. Subsequently, the goods are rinsed and soaped at the boil. A vivid orange print is obtained.

2. A fabric of bleached cotton is printed with the following printing paste:

(*Continued on page 222*)

BRITISH RESEARCH

A colloidal dyestuff has been perfected in England which is forced into the fabric by use of high temperatures and high pressure exerted by molten metal. It is reported that the dye floats on top of the liquid metal, is picked up by the cloth passing downward, and is forced into the cloth by submersion in the molten bath to the depth necessary to exert the required pressure.

One metal used in this process is Cerrobend, a copper alloy melting at 158° F. manufactured by Cerro de Pasco Corp., 40 Wall St., New York, N. Y. A machine for using this molten metal dyeing process is in development in England.

How much is waste costing in YOUR plant?

Here's how you can reduce it with BECKMAN pH CONTROL

IN industry after industry Beckman pH Control is reducing costs, minimizing waste, saving time and greatly increasing production efficiencies. Have *you* investigated what this amazing new profit tool can do in your plant? *Wherever there's water, there's pH.* So if you use water or water solutions of *any* kind . . . whether in pulps, liquids, or semi-solids—in process solutions, waste disposal or any other way . . . chances are that Beckman pH Control can help you do the job better—*for less.* Here, for example, is how others are slicing costs with Beckman equipment . . .

TWO BECKMAN pH INSTRUMENTS IDEAL FOR TEXTILE APPLICATIONS

The complete line of Beckman pH Instruments includes equipment for every pH requirement from specialized laboratory research to large-scale automatic process control. The two Beckman instruments below are widely used in the textile industry for general pH control applications. . . .

THE BECKMAN MODEL H—operates directly from standard 110 v. 50/60 cycle A.C. current. Features simplified operation, high accuracy, full temperature compensation and maximum stability. Can be used with a wide range of regular and special-purpose Beckman Glass Electrodes.

THE BECKMAN MODEL M—operates from completely self-contained long-life power supply for maximum portability in plant and field applications. Simple to operate, this compact, highly accurate instrument has many unique operating features, and, like the Model H, can be used with a wide selection of Beckman pH Electrodes.

Write for Descriptive Literature.

SAVING CHEMICALS: By Beckman-controlling processes where chemicals are used, operations can be controlled so closely that overdosage and excess use of chemicals can be practically eliminated. Not only does this cut chemical costs, but it also assures more uniform processing, more accurate production control and greater plant efficiency.

REDUCING CORROSION: More and more plants are discovering the many advantages of reducing corrosion with Beckman pH Control. By Beckman controlling-process operations, these operators are able to regulate acidity and alkalinity—and thus neutralize excessively corrosive solutions before they damage costly plant equipment.

MINIMIZING REJECTS: Beckman pH Control is also making important savings by assuring more uniform quality of production. In many operations only a small change in pH makes a great difference in operation of the processing solutions. By Beckman-controlling the solutions, run after run is processed with identical quality, thus reducing rejects, cutting production costs and making greater savings in over-all efficiency.

SAVING TIME: Just as heat can frequently speed up chemical processes, so proper pH control can often save on processing time. Here again, even a relatively small saving on each production run quickly builds up to tremendous over-all savings in labor and plant overhead.

WHEREVER THERE'S WATER, THERE'S pH!

Let our engineering staff study *your* particular pH problem and make recommendations on the type of equipment best suited to your requirements. No obligation, of course.

For helpful information on pH control, send for this free booklet "What Every Executive Should Know About pH!"

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BECKMAN INSTRUMENTS CONTROL MODERN INDUSTRIES

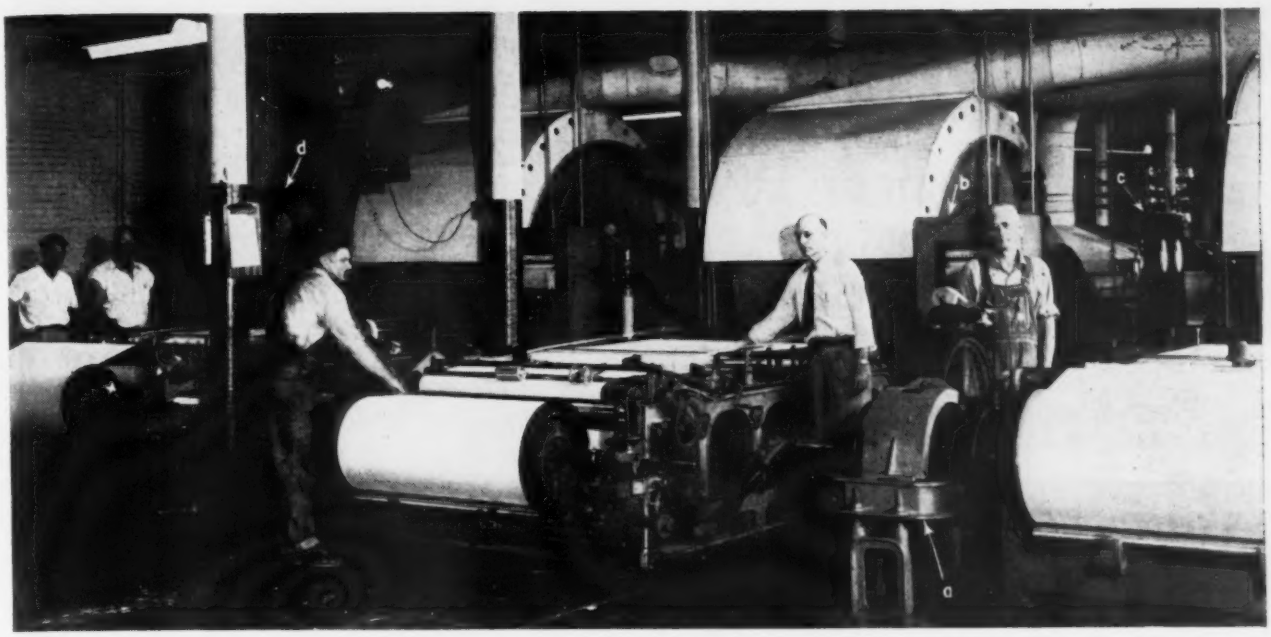


Fig. 1. Three two-cylinder, cotton-type slashers are used at The Seminole Mills for processing warps of synthetic-fiber blends. Controls shown here include variable-speed for the drive **a**, *Brown Moist-O-Graph* **b**, *cylinder and size-box* **c**, *and cooking and storage kettles* **d**.

Modern Slasher Room Features AUTOMATIC CONTROLS

HIGHLIGHTS: *Doubled production and increased warp quality achieved at The Seminole Mills, Clearwater, S. C.—Warp stretch of synthetic-fiber blends is controlled by adjustable pulleys—Maintenance, housekeeping, and worker comfort are emphasized in slasher-room operation.*

By P. M. THOMAS
Associate Editor, TEXTILE WORLD

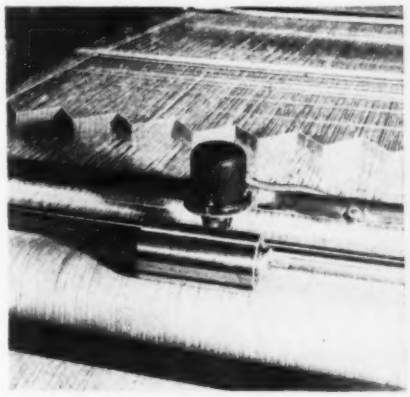


Fig. 2. Slasher speed is controlled in relation to the moisture content of the warp as indicated by this detector roll of the Moist-O-Graph. By means of the variable-speed drive, the slasher speed is regulated to maintain a constant moisture content of approximately 7%, regardless of the particular blend of synthetic fibers being run on the slasher at the time.

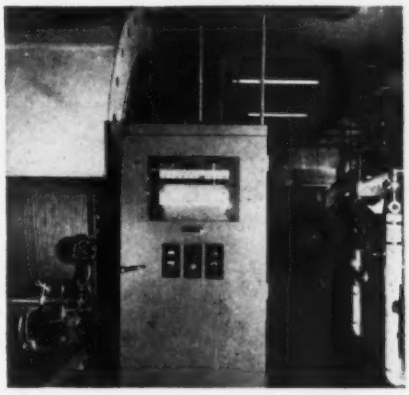


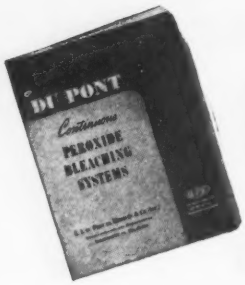
Fig. 3. The control cabinet of the Moist-O-Graph. Moisture detection from the roll in Fig. 2 is transferred to electronic controls in this cabinet, and the speed of slashing is automatically varied to insure uniform drying. Note the yardage tachometer on the side of the slasher and also the heat-extent hood and ducts over the cylinder. The hood and ducts improve working conditions.

AUTOMATIC CONTROLS on slashers have made possible significant increases in slasher production and warp quality at The Seminole Mills, Clearwater, S. C. Installed on the mill's three two-cylinder, cotton-type slashers as part of the broad modernization program now under way, the controls render completely automatic all processing phases of the mill's slashing.

The production of the mill is in blends of synthetic fibers. Before the automatic controls were installed, slasher production ranged from 14 to 25 yd. per min., depending upon the construction of the warps. Slashing speed on the same range of warp constructions now varies from 25 to 55 yd. per min.

A Brown Moist-O-Graph, in conjunction with a variable-speed drive, is the means for controlling slasher production on the basis of the moisture content of the warp, Figs. 2 and 3.

The variable-speed drive for each slasher is equipped with a generator that starts the slasher on a.c. current and switches to d.c. current when the high-speed button on the front of the slasher is pushed by the operator. The detector roll, Fig. 2, on the front of the slasher "detects" the amount of moisture in the warp; and electronic



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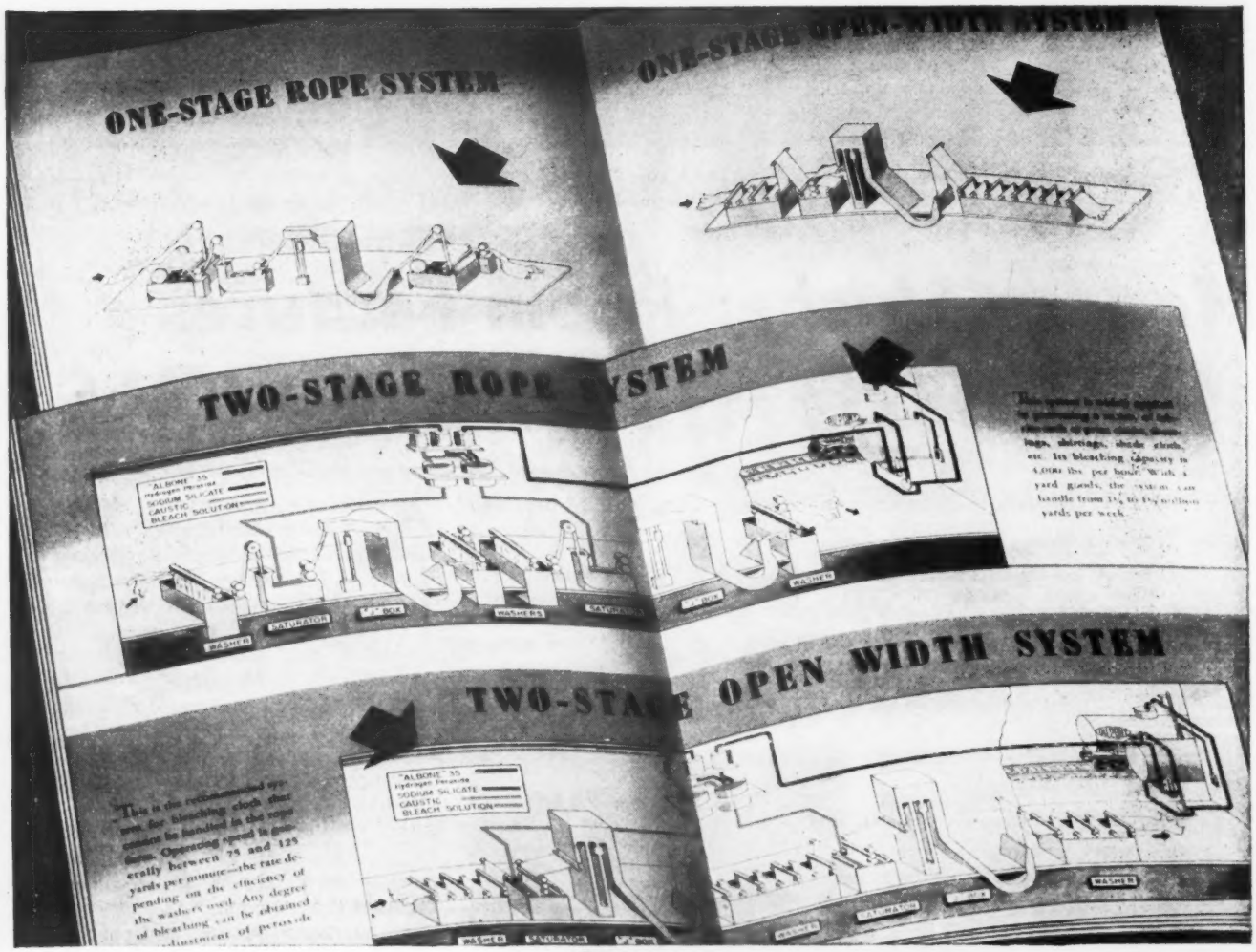

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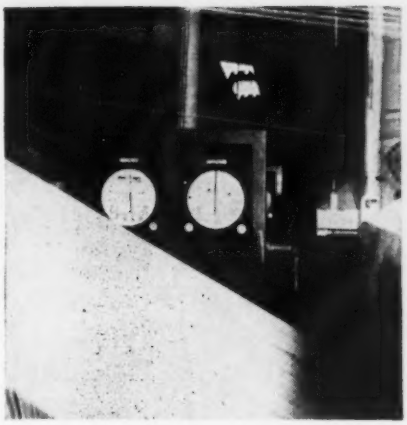


***Fig. 4.** The instrument panel to the left registers the pounds of steam pressure going into the cylinders. To the right is shown the temperature of the size in the size box. Any dropping from these settings causes air-actuated valves to open and admit more steam.*

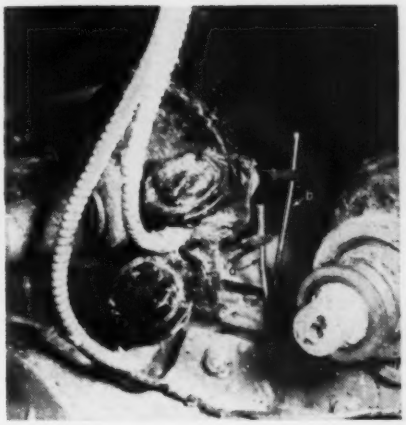


***Fig. 5.** The level of size in the size box is controlled by electrodes **a** and **b**. When the size level falls to the lower end of **a**, additional size is admitted through an intake valve. When the level rises to the lower end of **b**, the intake valve is automatically closed.*

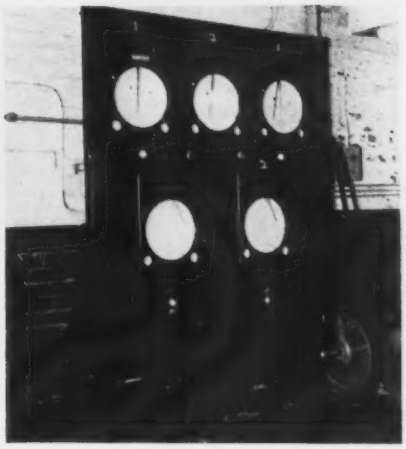


***Fig. 6.** The cooking of a new size mix and the heating of stored mixes are controlled from these cabinets. Exact duplication of cooking cycles is insured, and a constant storage temperature of 190° F. is maintained.*

controls in the instrument cabinet, Fig. 3, regulate the speed of the slasher by varying the amount of current supplied to the motor.

WARP STRETCH. Stretch of the warp yarn is controlled by means of two sets of feed-roll drive pulleys. One set of pulleys drives the feed rolls that enter yarn into the size box. The other set drives the feed rolls that take the yarn from the size box and deliver it to the cylinder. The feed to the size box or the delivery from it can be increased or decreased by regulating the V-shaped pulleys. These pulleys are opened or closed by means of a handwheel.

Yardage tachometers are installed at the size-box feed roll and at the cylinder delivery roll. By subtracting the yards per minute indicated by the feed-roll tachometer from that indicated by the delivery-roll tachometer, an accurate check is had instantly of the actual stretch of the yarn.

Each section beam in the creels is equipped with air-actuated brakes to control the warp let-off in response to the speed of the slasher. When the operator pushes the button on the front at the slasher to slow down the running of the warp, the brakes automatically slow down the section beams to a proportionate degree.

Temperature controls, Fig. 4, regulate the pressure of steam (8 to 15 lb., depending upon the construction of the warp) in the cylinders and the temperature (190° F.) of size in the size box. These controls function through air-operated steam valves.

SIZE LEVEL. The level of size in the size box is also controlled from the instrument cabinet by means of electrodes a and *b*, Fig. 5. A red light on the panel board burns as long as size is at the proper level in the size box. The electrodes, connected with the control cabinet through the electrical cables shown in Fig. 5, extend downward into the size box between the edge of the box and the squeeze rolls.

The end of electrode a is located at the point of minimum size level permissible, while *b* is located at the point of maximum size level. When the level of size in the box falls to the lower end of electrode a, the red light on the panel board of the control cabinet goes off, and a switch in the cabinet opens the intake valve in the line from the storage kettle. When the level of size rises to the lower end of electrode *b*, the switch closes the intake valve; and the red signal light comes on again.

The mill's two size-cooking kettles and three size-storage kettles are also automatically controlled, Fig. 6. The first ingredients of the size formula are dumped into a cooking kettle, and a signal light on the panel board is turned to green by the operator. The size is cooked by use of live-steam until the mixture reaches a temperature of 212° F., at which time the signal light automatically switches to red. The time required for the initial cooking is 27 min.

The other ingredients of the size formula are then added, and the cooking is carried out as before. The time required for this second cooking is also 27 min. As the slashers draw on the size in the storage kettles, the size

(*Continued on page 157*)

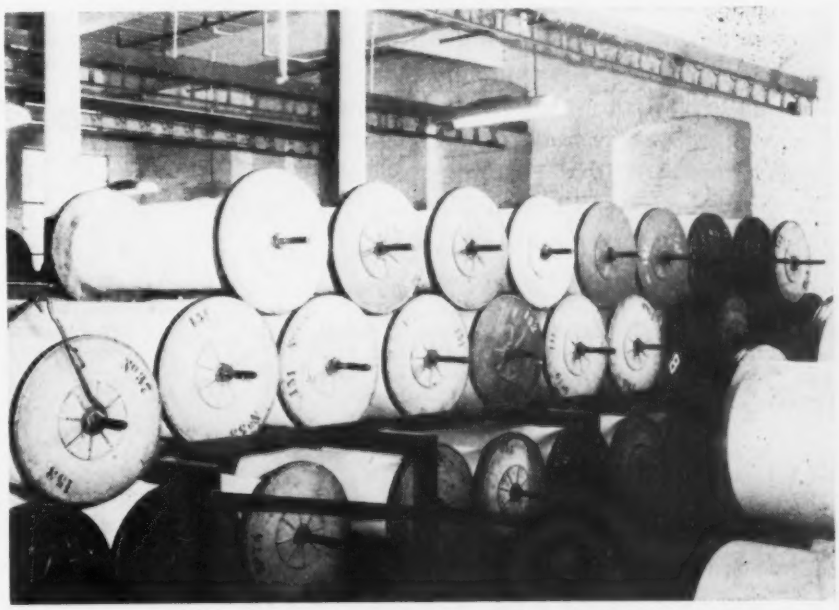
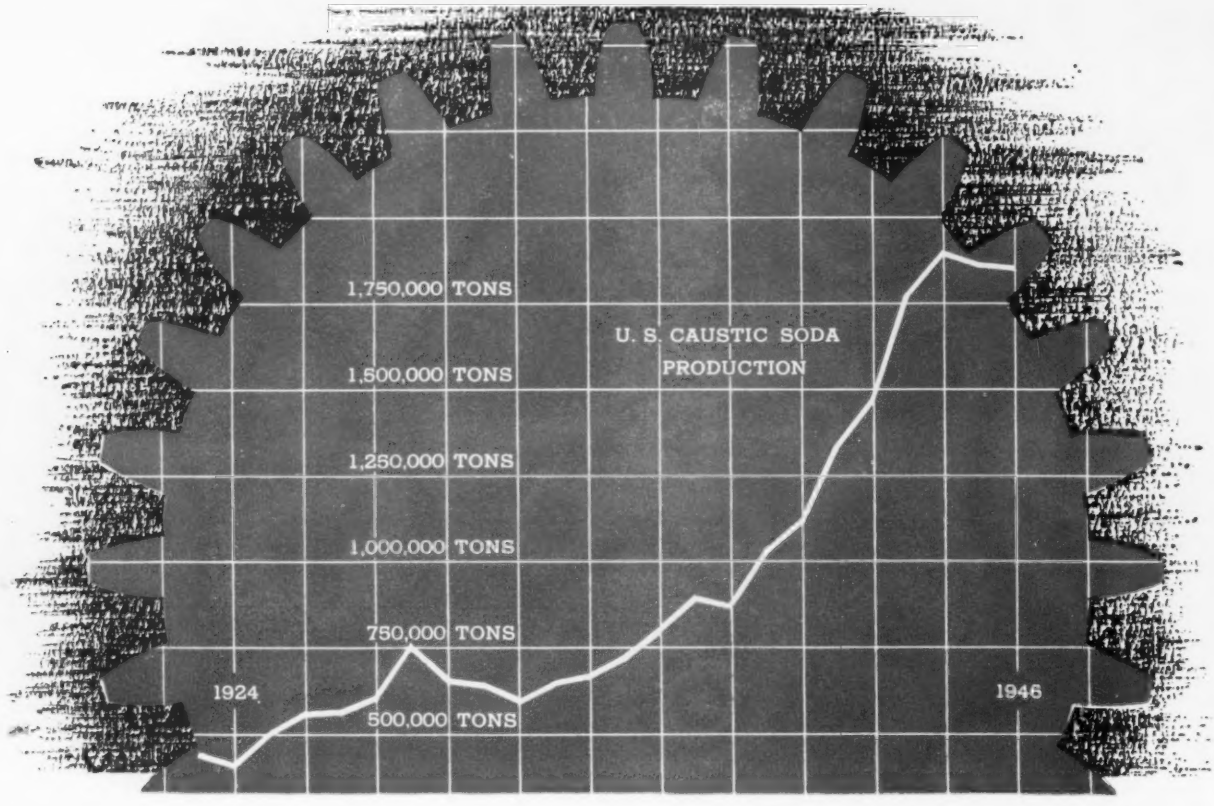


***Fig. 7.** Two tier-storage racks located at points convenient to the slashers aid in housekeeping and in handling full and empty beams. Handling and transporting of beams is done by means of electric hoists and overhead-conveyor rails.*



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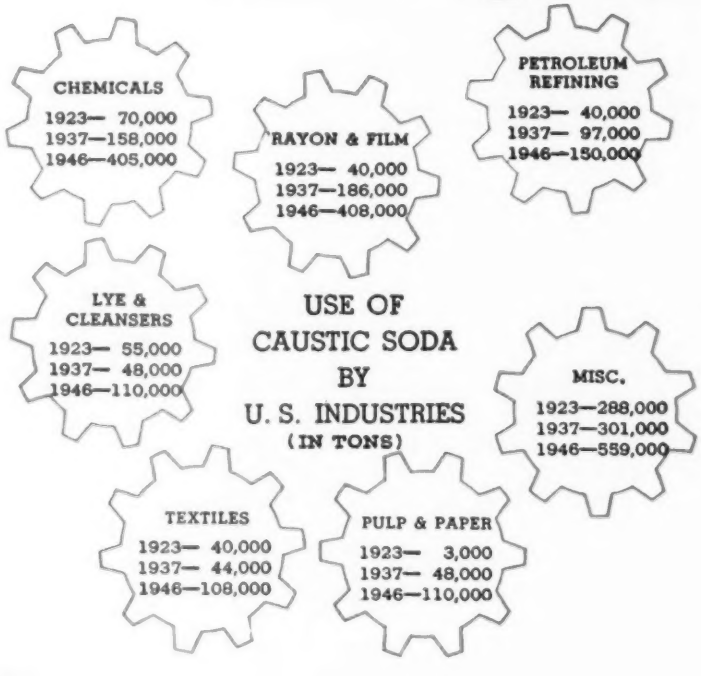

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COAL SILO Increases Boiler-Room Efficiency

***Fig. 1.** The inside dimensions of the coal silo are 20x65 ft., and the capacity is approximately 384 tons. The outside surface is of glazed tile, and the roof is of reinforced concrete.*

***HIGHLIGHTS:** Silo system at Dixie Mercerizing Co. handles coal mechanically from coal car to stoker—The 20x65-ft. silo has a storage capacity of 384 tons—One man can unload a 50-ton gondola and store the coal in about 2 hr.*

By E. DALTON WHITE

BETTER EFFICIENCY IN OPERATION, a more even feed to stokers, less dust in the boiler house, and savings in fuel handling are some of the advantages that Dixie Mercerizing Co. has gained from the installation of a silo and automatic coal-handling equipment at its Chattanooga, Tenn., plant.

The system has been in operation for about a year, and during that time operating costs have been reduced and plant efficiency has increased. A more effective supply of steam to the dyeing and finishing equipment has been obtained, and load peaks have been met without loss of temperature and pressure.

Before the new equipment was installed, all coal was handled manually from the railroad siding to the boiler house. A crew of four to six men was required to unload a 50-ton gondola by means of a 30-ft. conveyor run under the coal-car chute; coal was shoveled to the conveyor, which emptied the coal at the top of the yard-storage pile. Coal was then hauled by wheelbarrow to the boiler room and dumped into the stoker hoppers. This method of handling continuously required manual labor to keep the stokers supplied. The amount of coal fed to the stokers was 35 to 40 tons per 24 hr. Considerable dust was created in the atmosphere surrounding the mill and boiler room, and excessive moisture on the coal during wet weather affected boiler efficiency.

With the installation of the automatic equipment, accuracy and a constant flow of fuel to the boilers have been obtained. Automatic scales weigh the coal going into the stoker hoppers, which are automatically refilled. Dust in the surrounding air and in the boiler plant has been reduced to a minimum. The system has given the firemen more time to check gages, flow charts, fires, drafts, water levels, and other boiler factors. The result, of course, has been increased operating efficiency and safety.

HANDLING SYSTEM. The system, designed and installed by Fairfield Engineering Co., consists of a hopper, Fig. 3, located beneath the railroad track, into which coal from the coal-car chute falls. To the track hopper is attached a flight feeder that runs horizontally to a point near the silo. This feeder delivers the coal from the track hopper to a vertical bucket elevator, which raises the coal to the top of the silo and dumps it into the top chamber (designated "live storage") of the silo. It has a capacity of approximately 74 tons of coal.

Overflow from the live-storage chamber falls into the lower (reserve-storage) chamber. This lower section has a capacity of 310 tons. When coal from reserve storage is needed in live storage, the bucket elevator is used to hoist the coal again to the top of the silo. This reclamation of coal from reserve storage is accomplished by allowing the coal to feed by gravity down the sloping concerete slab at the bottom of the silo into the loading boot of the bucket elevator.

Coal is fed from live storage to the

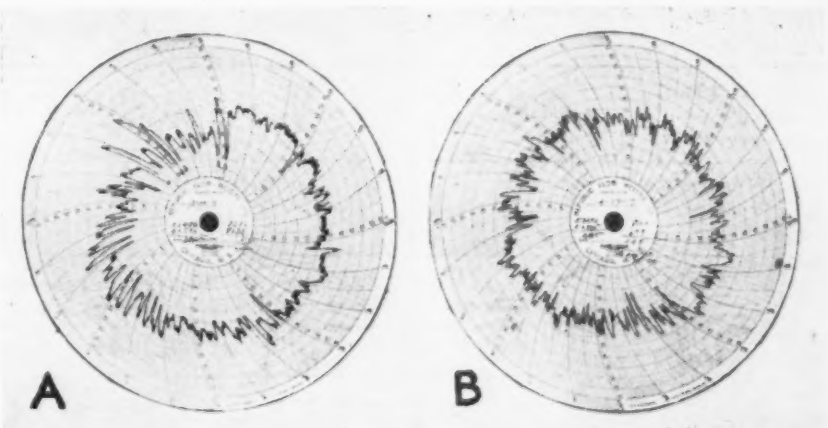

***Fig. 2.** These 24-hr. flow-meter charts are a factor in estimating the efficiency at which the boiler system operates. Chart A was used to show that in a 24-hr. period 630,000 lb. of steam were delivered. Readings from the automatic scale showed that during this period 39 tons of coal were used. Thus, each pound of coal delivered 8 lb. of steam. Chart B indicated that during another 24-hr. period 40.5 tons of coal delivered 648,000 lb. of steam, or 8.07 lb. of steam per pound of coal.*

CHEMICAL USERS' GUIDE To General Chemical Company Products for the Textile Industry

PRODUCT	AVAILABLE FORMS	COMMERCIAL STRENGTH (MIN.)	SHIPPING CONTAINERS	APPLICATIONS
Glauber's Salt, Crystal $Na_2SO_4 \cdot 10H_2O$ *(Sodium Sulfate)*	Colorless Crystals	96% $Na_2SO_4 \cdot 10H_2O$ 42.3% Na_2SO_4	Bags Barrels	Dyeing assistant.
Glauber's Salt, Anhydrous Na_2SO_4 *(Sodium Sulfate)*	White Granules	99.5% Na_2SO_4	Bags Fibre Drums	Same as crystal but stronger product.
Sulfuric Acid H_2SO_4	Liquid	66° Be 93.19% H_2SO_4	Carboys Steel Drums Tank Trucks Tank Cars	Carbonizing wool; dyeing; desizing cotton; souring; rayon spinning bath.
Acetic Acid CH_3COOH + water	Colorless Liquid	Various	Carboys Barrels Tank Cars	Dye bath; souring agent; imparting scroop to cotton and silk.
Aqua Ammonia NH_4OH + water *(Ammonia)*	Colorless Liquid	26° Be 29.4% NH_3	Carboys Steel Drums	Wool scouring; dyeing.
Hydrochloric Acid HCl + Water *(Muriatic Acid)*	Liquid	22° Be 34.1% HCl	Carboys Tank Cars Tank Trucks	Souring; removing hypochlorite bleach; dyeing.
Tetrasodium Pyrophosphate, Anhydrous $Na_4P_2O_7$ *(TSPP) (Pyro)*	White Powder	98% $Na_4P_2O_7$ (Equiv. 52% P_2O_5)	Bags	Stabilizing peroxide bleaches; water treatment and dispersing agent; detergent.
Sodium Metasilicate $Na_2SiO_3 \cdot 5H_2O$	White Granules	29.0% Na_2O	Bags Fibre Drums	Kier boiling as detergent.
Sodium Sulfide Na_2S + water	Red Chips or Solid Mass	60% Na_2S	Steel Drums	Dyeing with sulfur dyes; depilatory for wool pulling; desulfuring rayon.
Sodium Sulfite, Anhydrous Na_2SO_3 *(Sulfite)*	White Powder	98.5% Na_2SO_3	Bags Fibre Drums	Rayon manufacturing.
Sodium Bisulfite, Anhydrous $Na_2S_2O_5$ *(ABS) (Sodium Metabisulfite)*	White Powder	97.5% $Na_2S_2O_5$ (Equiv. 65.5% SO_2)	Fibre Drums	Bleaching wool; anti-chlor after bleaching with hypochlorite; rayon manufacturing.
Oxalic Acid $C_2H_2O_4 \cdot 2H_2O$	Colorless Crystals	99.5% $C_2H_2O_4 \cdot 2H_2O$	Fibre Drums	Bleaching; dyeing; for mordanting wool with chrome.
Ferric Sulfate $Fe_2(SO_4)_3$ + water *(Iron Copperas Nitrate)*	Liquid	47° Be 11% Fe	Carboys Barrels	Silk weighting; mordant.
Ferric Nitrate $Fe(NO_3)_3$ + water *(Iron True Nitrate)*	Liquid	43° Be 47° Be 10% Fe 11% Fe	Carboys Barrels	Silk weighting; mordant.

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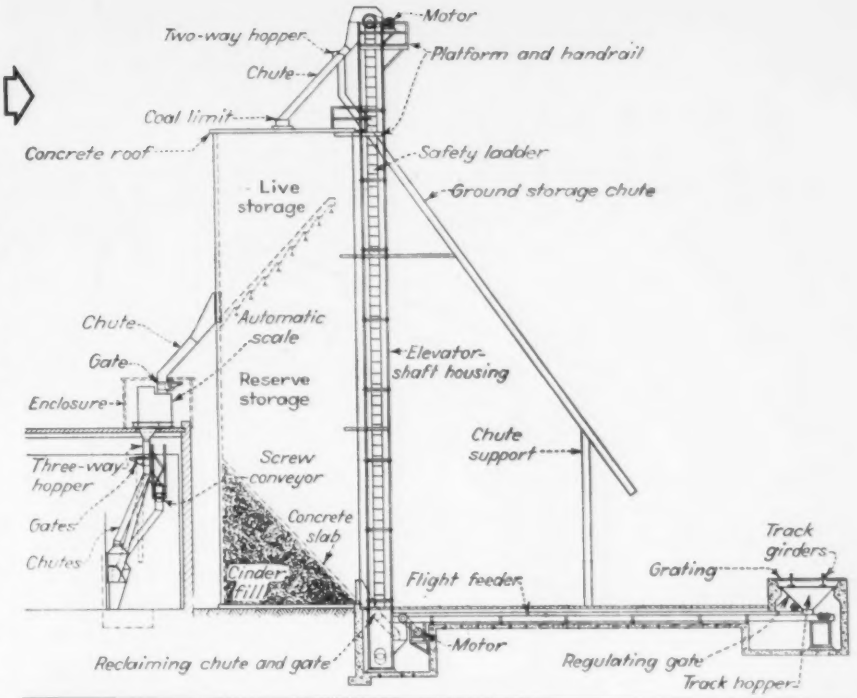

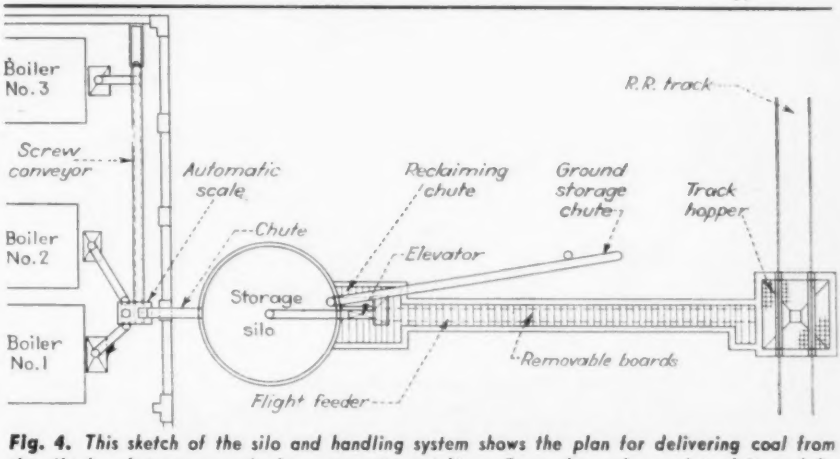

Fig. 3. *Coal is dropped from the chute of the railway car into the track hopper, right, from which it is conveyed by the flight feeder to the loading point of the vertical bucket elevator. The elevator raises the coal to the top of the elevator shaft and dumps it into a two-way chute. In this chute, the flow of coal can be directed into the silo or to the ground-storage chute to be returned to the ground. If the coal is directed into the silo, it drops into the live-storage chamber at the top of the silo. When this chamber overflows, the coal drops into the lower reserve-storage chamber, from which it can be returned to live storage by means of the elevator. From live storage, coal is fed through chutes and a screw conveyor to the stokers.*

stokers by gravity through a Richardson automatic scale and delivered to stoker hoppers by chutes and a spiral conveyor.

Coal in excess of the amount that can be stored in the silo is unloaded from the gondola by means of the track chute and flight feeder, raised to the top of the silo, and returned to the ground for storage in a pile. The piling is accomplished by means of an auxiliary chute installed at the top of the elevator. Coal can be fed to this chute by operating a flap-valve from the ground level by means of a chain or wheel. The center of the yard-storage pile is over the flight feeder. Coal stored in this pile is reclaimed by removing the boards covering the flight feeder and allowing the coal to drop into the flight feeder to be conveyed to the silo. The amount of coal ordinarily stored in this pile is from 1,200 to 1,500 tons.

The system has a handling capacity of 30 tons per hr. Thus, a 50-ton gondola can be emptied by one man in about 2 hr., with the coal being automatically stored in the silo or yard.

One of the advantages in silo storage is that excessive moisture in the coal is eliminated, thus increasing boiler efficiency. Any moisture that might have accumulated in the coal while in yard storage or in transit is drained off during storage.

Dixie Mercerizing Co. has found that with automatic handling on conveyors and chutes pulverizing tendency is somewhat reduced. Also, with the spiral-conveyor feed to the stokers, there is less tendency of segregation by lump size in the coal and a more uniform mixture and fire bed are obtained. The stoker hoppers are provided with dust hoods to prevent dust from settling in the boiler plant.

Accurate records of coal consumption, flow meters, temperature, and pressure are maintained so that quick adjustments can be made as steam demand fluctuates. Each boiler is checked daily to insure maximum efficiency.

Fig. 4. *This sketch of the silo and handling system shows the plan for delivering coal from the silo by chute to a scale for automatic weighing. From the scale, coal is delivered by chutes to stokers on boilers Nos. 1 and 2 (a and b in Fig. 5) and by a screw conveyor and chute (c and d in Fig. 5) to boiler No. 3.*

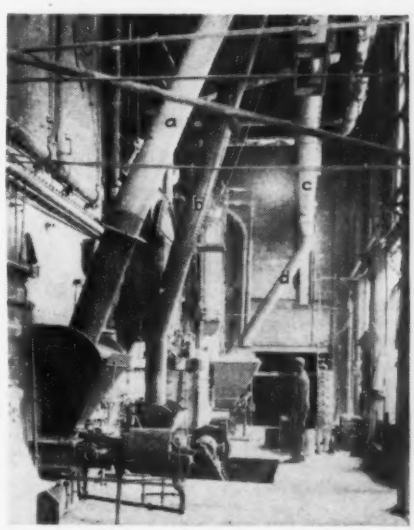

Fig. 5. *Stoker hoppers of boilers Nos. 1 and 2 are fed by chutes a and b respectively from the automatic scale (not shown), while stoker hopper on boiler No. 3 is fed by screw conveyor c, which empties into delivery chute d. When needed, additional coal is automatically fed from the scales.*

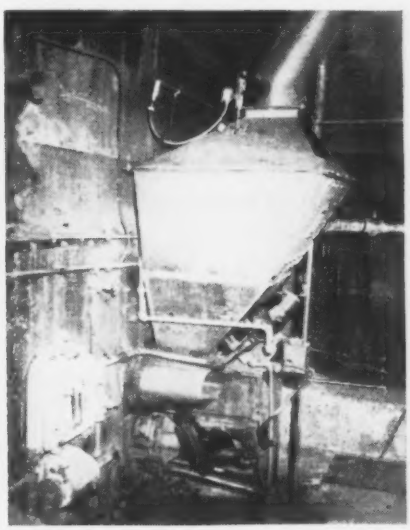

Fig. 6. *At top right can be seen chute d in Fig. 5, which conveys coal from the overhead horizontal screw conveyor to the stoker of boiler No. 3. Automatic feeding has contributed significantly to safety and boiler efficiency, partly because firemen now have more time to check valves, drafts, flow charts.*

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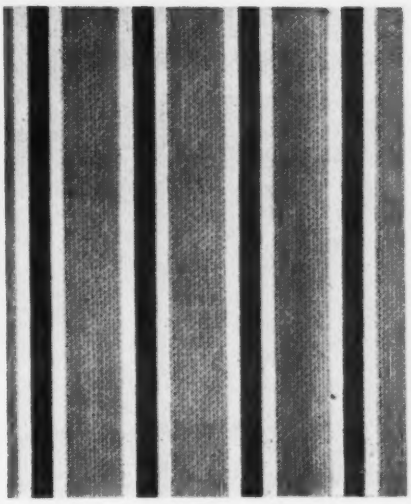


ROLLER PRINT

SCREEN PRINT

Samples of fabrics show results achieved with new-type emulsion printing.

New Emulsions Developed For Textile PRINTING

HIGHLIGHTS: *Emulsions used for printing azoic, chrome, and direct colors —Preparation follows that for water-in-oil procedures for pigment colors— Three components needed—Dangers from cracking minimized.*

THERE HAS RECENTLY been developed new types of emulsions[1] for the printing of such dyes as the azoic, chrome, and direct colors. These emulsions are of the water-in-oil type, the inner phase of which comprises the water-soluble, textile coloring component. In printing, these emulsions have several advantages over conventional printing pastes.

One general advantage is that the use of these emulsions greatly simplifies print-shop problems, particularly in those plants which are applying pigment colors by the water-in-oil emulsion system. This simplification arises from the fact that the same type of clear which is employed for making pigmented emulsions can be used with the previously mentioned classes of colors. As a result, it is unnecessary to use starch or gum pastes for printing azoic, chrome, and directs when they are used in conjunction with pigment colors in the same pattern.

Certain other specific advantages depend upon the class of dye employed and the type of fabric being printed. These advantages will be mentioned later. To date, these emulsions have been used mainly for printing, although they can also be used for producing solid-dyed shades.

EMULSION PREPARATION. The procedure to be followed when preparing these emulsions is similar to that used for the water-in-oil types for printing with pigment colors. In order to prepare the emulsion, three components are needed as follows:

1. Concentrated clear of the same type as that used for making pigmented emulsions.
2. Organic solvents of the same type as that used for making pigmented emulsions.
3. Aqueous solution of an azoic, chrome, or other class of dye.

Example:

Clear	8 parts by weight
Varsol #2	22 parts by weight
Aqueous solution of dye	70 parts by weight
Total	100 parts by weight

These components are put together as follows:

1. Measure concentrated clear into mixing tank, which may be a 55 gal. or other standard open-head drum.
2. Add solvent.
3. Stir with paddle to loosen any concentrated clear that may adhere to the bottom.
4. Lower mixer into tank and start mixing. (The use of a high-speed mixed is essential in properly preparing such an emulsion.)[2]
5. When clear and solvent are thoroughly mixed, and with mixer still running, add dye solution slowly by means of a feed line and raised measuring tank.
6. After all the dye solution has been added, run mixer for about 10 to 20 min.
7. Raise mixer and remove drum.
8. Clean mixer immediately after use by spinning in a tub of water.

After the printing color has been prepared, following the previously mentioned directions, it is ready for printing. This operation is carried out in the usual manner on a roller printing machine or on screen-printing equipment. The aftertreatment required depends upon the class of dye employed.

AZOIC DYES. Of the various classes of dyes employed in these emulsions, the azoic dyes are particularly important. Brand names and manufacturers of the principal azoic dyes include the following:

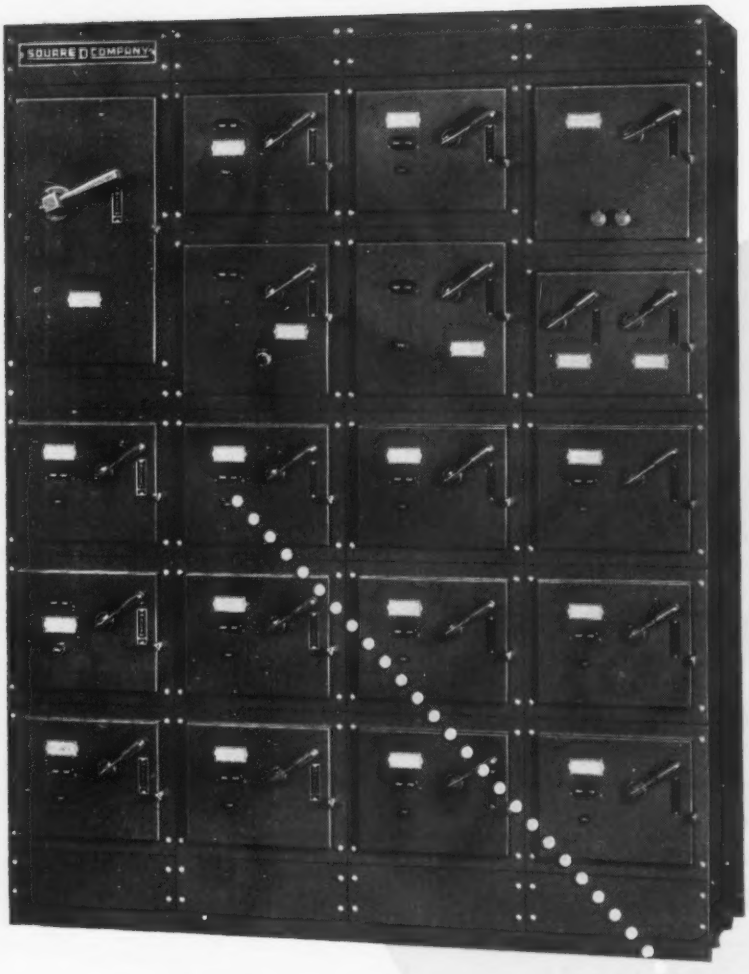
1. "Pharmasol"—Pharma-Chemical Corp.
2. "Rapidogen"—General Dyestuff Corp.
3. "Diagen"—E. I. du Pont de Nemours & Co., Inc.

A typical formula for producing an emulsion with a Pharmasol color is as follows:

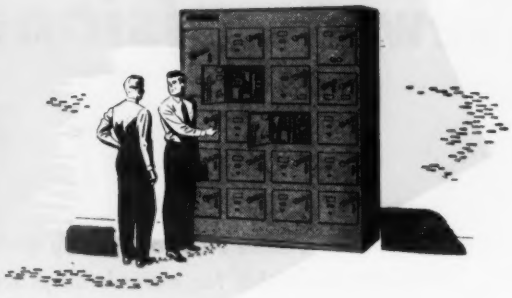
Clear 6214	8 parts by weight
Varsol No. 2	22 parts by weight
Pharmasol Red GNBS	20 parts by weight
Water	50 parts by weight
Total	100 parts by weight

The procedure for making the emulsion is as follows:

(Continued on page 230)



PART OF THE PARADE OF NEW DESIGNS

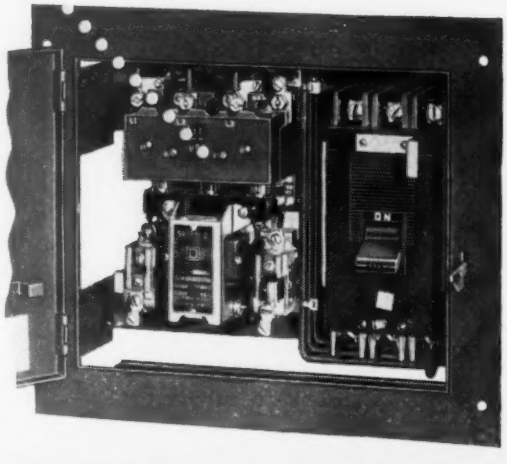


Use Square D Control Centers *for Opening and Picking Room Installations*

• Control centers permit low-cost grouping of starters in favorable locations. They offer the basic advantages of attractive appearance, compactness, easy installation, convenient maintenance and adaptability to future change or expansion.

You get better performance in Square D Control centers because each of the basic advantages is greatly increased by the time-proved design and operation of Square D Starters plus the inherent value of Circuit Breaker protection.

Call your nearby Square D Field Engineer for complete details.



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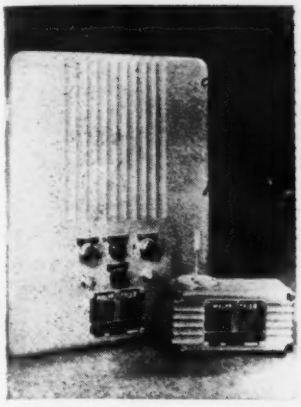

Fig. 1. *The control cabinet (left) is the "brains" of the unit, and the magnet assembly (right) is the "muscle."*

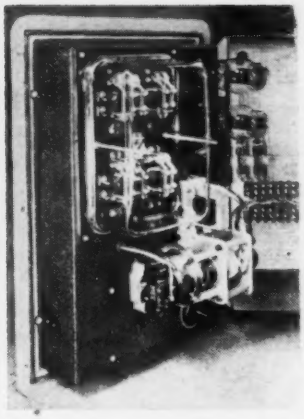

Fig. 2. *The inner workings of the control cabinet automatically level out weighings of wool fed to the card.*

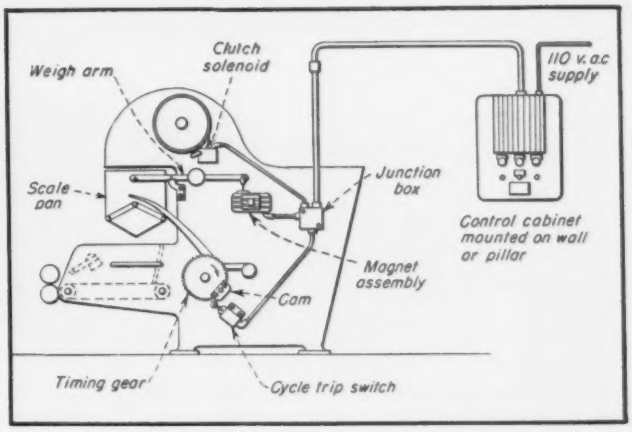

Fig. 3. *Diagrammatic installation of the Magnepoise on a wool card feed. The trip switch is activated by the timing gears of the feed once for each feed cycle.*

Electronic Device Controls WOOL-CARD FEED

HIGHLIGHTS: *Effect of hopper level on pan weighings eliminated— Evener roving and yarn produced— Higher loom efficiency and fewer cloth imperfections result.*

By GUSTAV ZELLNIK

Consulting Editor, TEXTILE WORLD

UNEVEN WEIGHING of wool stock is the root of many yarn-spinning troubles. The resultant uneven roving not only reduces spinning and weaving production, but causes yarn breaks in spooling and dressing. Costs of mending and burling, and number of cloth imperfections and seconds are increased.

Broad Brook Woolen Co., Broad Brook, Conn., and another Connecticut mill have increased yarn and cloth quality and production by means of an electronic device called Magnepoise installed in the feedbox of the cards to level successive weighings of stock. One mill reports more even yarn, fewer changes of gears to level out roving differences, increased spinning production, fewer breaks, and decreased mending costs. The other mill manager reports that weavers prefer and ask for looms using yarn carded where the device was installed and claims nearly complete disappearance of rejections of fabrics made from those looms.

(Continued on page 266)

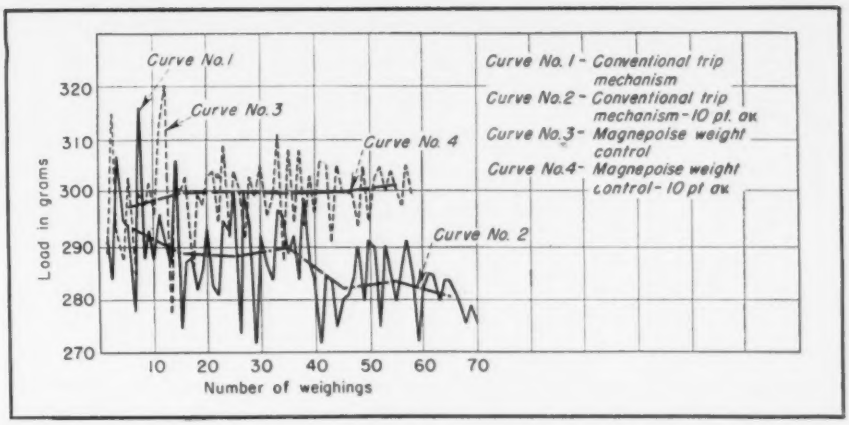

Fig. 4. *This test was made at Broad Brook Woolen Co. on a modern feed (1941). The downward trend in delivered weights in conventional feeds caused by decreasing stock in the hopper is clearly shown. Weights delivered by the electronic control device are held within a 1% variation.*

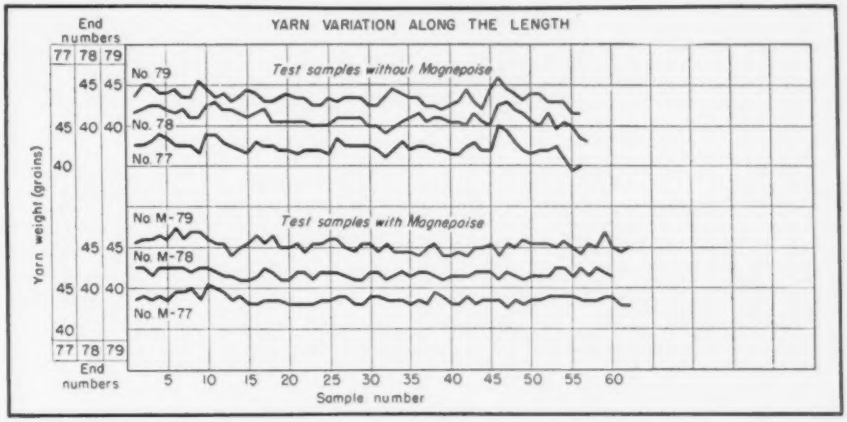

Fig. 5. *Three adjacent ends from cards fed conventionally at Broad Brook Woolen Co. with Magnepoise were spun and successive 50-yd. reelings weighed. Curves of yarn spun from the Magnepoise-equipped card are more level.*

Greater Durability with 1/4 LESS WEIGHT

Magnesium!

With equipment that moves easily and swiftly—production moves! That's why the Flex Spool Company, of Pittsfield, Massachusetts, makes jackspools entirely of magnesium, lightest of structural metals. Magnesium makes jackspools lighter—yes, *by 25 per cent!* And it gives them superior durability, too. Yet Flex Spool found that, because of fabrication economies and magnesium's lasting qualities, these spools cost no more over a period of time.

EASY TO PRODUCE . . . EASIER TO HANDLE

Lightweight magnesium is extruded as fluted tubing with ⅛" wall to form barrel in a single operation. With metal previously used, fluting was a costly additional process. Magnesium barrel is rigid and strong.

Finished jackspool is sound, serviceable —and light. It is easily moved from one machine to another. Such lightness also means low shipping costs. Magnesium die cast heads eliminate fittings, and are strong and sturdy.

-you'll buy Magnesium Lightness too!

DOWMETAL

DOW

Dow supplies magnesium and its alloys in all forms. Ask Dow for information on the uses of magnesium in textile equipment.

50th Anniversary 1897-1947

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Dow Chemical of Canada, Limited, Toronto, Ontario

Let's Look at the COTTONLESS Cotton Mill

HIGHLIGHTS: *Gray Mills, Inc. makes the cotton system work on varied blends by rebuilding conventional machines — Modern rayon equipment planned—From 30 to 60 lb. per hr. produced on rebuilt double-coiler, roller-top card—Tow-to-top and special worsted machines are in development.*

Jack Scott, junior at the School of Textiles, North Carolina State College and an experienced card-room fixer, adjusts the evener motion on a rebuilt Kitson finisher-picker at Gray Mills, Inc. For synthetic blends, Gray Mills uses this mixing picker which is fed by a hopper feeder and is equipped with a Kirschner beater. Beater speeds range from 550 to 1,400 rpm. The blend is made into 14 oz. laps which are then re-run on the same picker. Note the new Walton Laboratories humidifier in the background and the fluorescent lighting.

Gray Mills, Inc., specialty spinners of Gastonia, N. C., is an example of the cottonless cotton mill which depends upon development of blends and special equipment for its success. Unlike the large textile corporation which maintains a separate and highly organized research department, Gray Mills obtains its experimental work from the regular production-line supervisors. It is small, independent, and alert.

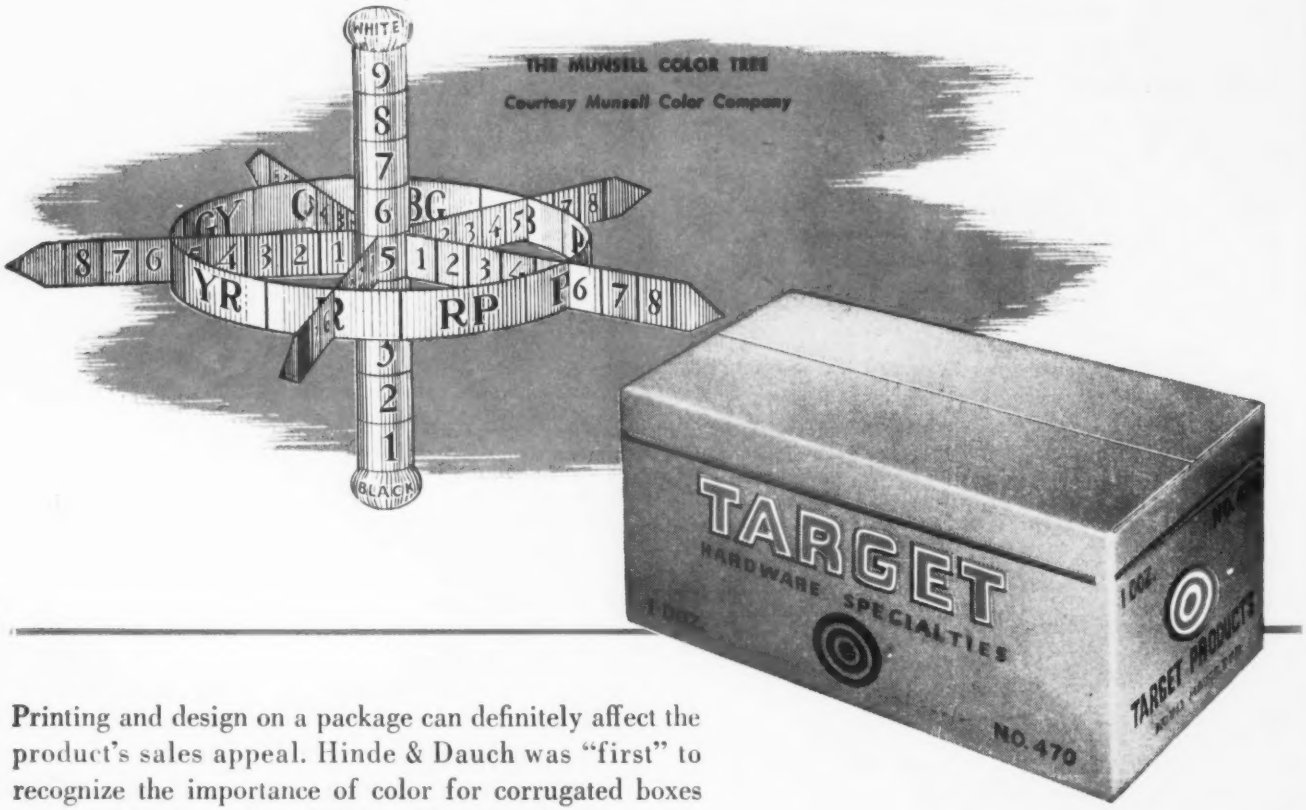
It was started as an experiment by J. L. Gray, president, and W. A. Scott, general manager. At the time only foreign staple was available for

There are no definite grinding schedules in the cottonless cotton mill. The characteristics of the fibers processed are so varied that the mill must depend on the grinder's judgment of the clothing's condition. Ashworth's hard-point, knee-less wire is used on Gray's roller-top cards above. It is said to be made especially for synthetic and wool fibers, and Gray Mills reports that the wire, given normal care, is free of loading and requires minimum stripping. Wires used are 90s cylinder and 100s doffer.

The roller-top cards are of English origin but have been equipped with American parts and have six workers and strippers, and double coilers. Production varies from 30 to 60 lb. per hr., depending upon characteristics of the fiber processed and demands of yarn quality.

To run varied synthetics, hair, and wool; Gray Mills uses Medley 5-roll drawing frames. Worsted is also processed on these frames which have ball-bearing rolls and adjustable stands for the extremely varied staple-lengths which Gray Mills processes. Most drawing is double, and some blending may be done here.

first to apply a standard, scientific COLOR system to corrugated box printing



Printing and design on a package can definitely affect the product's sales appeal. Hinde & Dauch was "first" to recognize the importance of color for corrugated boxes . . . was "first" to adopt the Munsell system for accurately selecting, naming and classifying color. For years, H & D customers have had complete assurance that there would be little or no variance in colors—between one box order and another. On the long list of H & D "firsts" are also PREPAK*, the unit package; DUPLEX, the shipping-display box; and the duo-use LUGGAGE BOX. These "firsts" increase sales potentials, by reducing loss from damage in transit, by cutting packaging and distribution costs. The Hinde & Dauch Paper Company, 4706 Decatur Street, Sandusky, Ohio.

LOOK TO

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H&D

FOR PACKAGING "firsts"

*TRADE MARK REG. U. S. PAT. OFF.

HINDE & DAUCH · *Authority on Packaging*

FACTORIES IN: Baltimore 13, Maryland • Buffalo 6, N. Y. • Chicago 32, Illinois • Cleveland 2, Ohio • Detroit 27, Michigan • Gloucester, N. J. • Hoboken, N. J. Kansas City 19, Kansas • Lenoir, N. C. • Montreal, Quebec • Richmond 12, Virginia • St. Louis 15, Missouri • Sandusky, Ohio • Toronto, Ontario • Boston, Mass

Operator starts up a slubber which makes 1.00 hank roving of an Aralac-nylon blend. Staples up to 3½ in. may be processed on this conventional-draft frame if weight is removed from the middle roll.

Conventional-draft, 9x4½ Woonsocket speeders are used by Gray's two-process roving system; but one-process, 3-over-4, 10x5 slubbers will replace this system and improve the roving process.

new mills, and new rayon or worsted equipment was unobtainable. To meet production demands for special rayon and worsted yarns, the mill rebuilt conventional cotton-mill machinery. At the present time, the mill processes viscose, acetate, wool (worsted), nylon, Aralac, various hairs, and ramie in 100% form and in blends of a variety of fibers.

Much of its present equipment is still of the rebuilt variety, but when present orders for equipment are filled, some of it will be replaced by new synthetic-fiber equipment. One of the first mills to install the Joanna spindle adapter and Medley worsted drawing frames, Gray Mills is experimenting constantly for improved methods of processing. A tow-to-top machine which will cut and align the fibers so that processing can begin on the slubber is one of their experiments; another concerns a special worsted speeder which will process 60-gr. sliver into 4-hank roving on staple lengths up to 6 to 7 in.

Spinning has conventional draft with Washburn middle roll, 3¼ in. gage, and 2 in. ring. Some frames equipped with the Joanna adapter for spindles were said by Gray Mills to have increased package size by about 25%. Saco-Lowell's Z-2 Draft frames of 4½-in. gage are on order for this department.

The winder operator places a special wax cake on the Foster waxing attachment. The winder is Universal's Roto-Coner equipped with a cast-iron traverse drum instead of the usual Bakelite drum. The cast-iron traverse is said to withstand the traction of coarse-fibered yarns such as ramie-blended yarn shown above.

Ever name triplets?

Monsanto had to recently . . . and it wasn't easy. You see, Monsanto's unique new textile chemical, Resloom . . . introduced first to make *rayons crush-resistant* . . . now has a wonderful, new "sister" application: *making woolens washable*. And soon to be offered are equally remarkable improvements for cottons. In brief, Resloom is the *basic* product; there are three variations in formula to do three different jobs.

The question arose: Should there be one name for all three of these applications . . . or three names, one each for each special function? There were good arguments for either choice.

Monsanto decided it would be less confusing and less burdensome to the trade to have *one* name, Resloom, already well-known. *BUT with this important variation:* the different formulation for each application was given an individual sub-title. Thus, Monsanto now has:

1	**RESLOOM**—Formula R for Crush-Resistant Rayon
2	**RESLOOM**—Formula W for Washable Woolen
3	**RESLOOM**—Formula C for Wrinkle-Resistant Cotton

Resloom, therefore, will mean generally . . . *lasting character and greater performance* to wool, cotton, rayon. And it will mean special properties for each major type of fiber, as indicated. Obviously, in blended fabrics Resloom will improve every part.

Monsanto is certain that this simplifying decision will work out to the greatest advantage for all concerned. You are invited to investigate any or all of these Resloom formulations for your products. Monsanto has an ambitious program of promotion for the months ahead . . . take advantage of it by taking advantage of Resloom . . . for crush-resistant rayons, washable woolens, wrinkle-resistant cottons. Address: MONSANTO CHEMICAL COMPANY, Textile Chemicals Department, 140 Federal St., Boston 10, Mass.

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*Reg. U. S. Pat. Off.

SERVING INDUSTRY . . . WHICH SERVES MANKIND

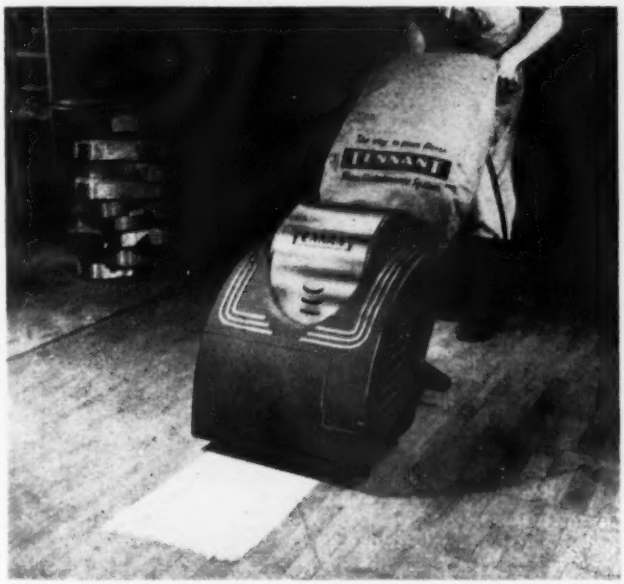
Mechanized FLOOR MAINTENANCE Saves Money at Macon Textiles

HIGHLIGHTS: *Cost of floor maintenance reduced one-quarter — Program involves reconditioning and systematic upkeep—Improvement noted in light reflection and safety.*

***The spinning and winding department** at Macon Textiles Inc. (top of page) has a bright, smooth, and non-slippery floor as the result of mechanized reconditioning and maintenance. There is a high reflectance of light from the continuous fluorescent fixtures sunken into the ceiling.*

By D. W. BARNES
Manager, Macon Textiles, Inc.

MECHANIZED EQUIPMENT has reduced floor maintenance costs by one-quarter at Macon Textiles, Inc., Division of Uxbridge Worsted Co., Macon, Ga. Scrubbing methods formerly used cost $306.60 a month,



1. *Reconditioning of floors started with use of a powered drum-type floor sander. Several grits of paper were used and finish cuts made with a fine-grit paper. Spinning room floors embedded with old travelers were treated by this machine using revolving steel cutters, followed by sanding. Places which could not be reached by this machine, as under looms, were sanded with a portable powered edger.*

2. *Sealing with a penetrating tung oil followed sanding. Two coats of oil were spread with a lambswool applicator and, while wet, buffed with a steel-wool roll mounted in the same type machine used for sanding. Macon Textiles found that sanding and resealing were eliminated as long as systematic daily maintenance was kept up. The floors have been subjected to normal traffic and wear for two years without damage to the surface. Present traffic conditions require use of a special surface-renewing material every 90 days for maximum hardness and resistance to dirt penetration.*

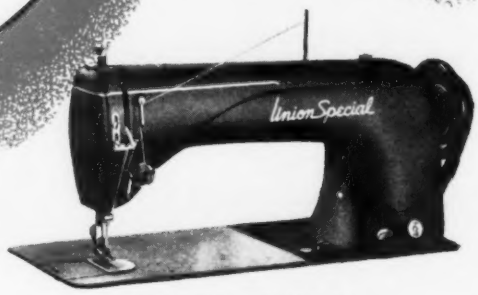
UNION SPECIAL

Building...

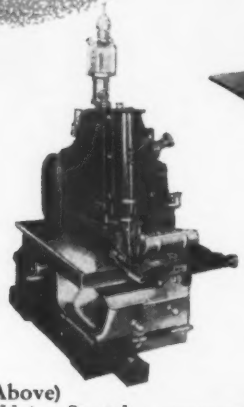
the kind of machines YOU need!

The user's "needs" are always the first consideration at Union Special. Today, more than ever, users of industrial sewing machines need equipment that will help cut costs and turn out more work in shorter hours. Modern machines must be "producers"—able to withstand punishing speeds . . . mechanically perfect in the work produced . . . easy to operate, popular with operators. You can depend on Union Special to bring you this kind of sewing equipment.

ROUND THE CLOCK PRODUCTION
A night view showing a part of the Union Special factory where production has been pushed higher than ever before to meet the demand for modern sewing equipment.

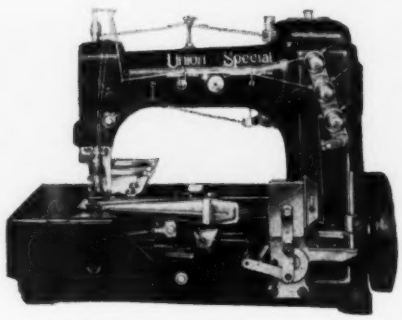


61300 HA — 61300 JA
The Union Special Lockstitch —Style 61300 HA for light to medium work; Style 61300 JA for medium to medium heavy work.



39200 AS (Above)
The popular Union Special overseamer for blind stitch welting and hemming on knit undergarments.

52800 E (Right)
Specially designed for attaching split tube borders.



PRODUCT APPLICATION

UNION SPECIAL offers a wide variety of industrial sewing machines to perform virtually all sewing operations. To assist in meeting your particular requirements, the UNION SPECIAL PRODUCT APPLICATION DIVISION is ready to help you plan a modern, high-efficiency line-up. For information, see your local Union Special representative or write.

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LOOK TO UNION SPECIAL FOR THE BEST IN . . .

INDUSTRIAL SEWING MACHINES

3. *Oily floors under machines were masked by a gray oil-cover lacquer applied by Macon men. This paint dries in 30 min. Contrasting color borders of tile red were applied in some places.*

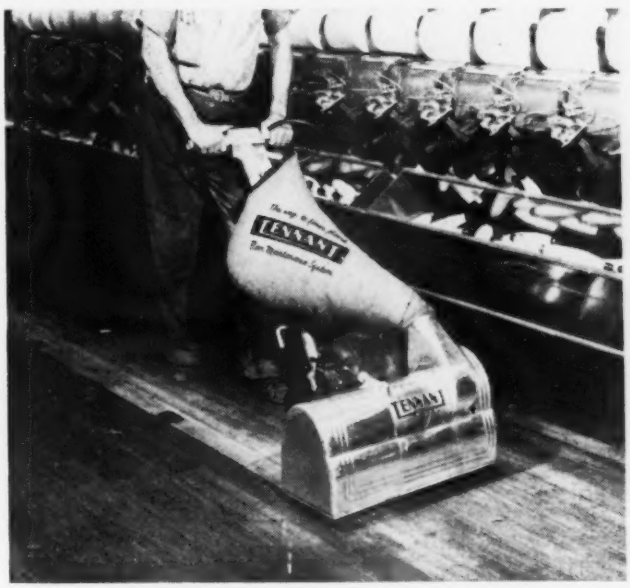
4. *Daily maintenance of Macon floors consists of sweeping with cotton mops treated with dust-absorbing material.*

but use of powered "dry-cleaning" machines has reduced the cost to $230.70. Scrubbing has been eliminated, deterioration of floors reduced, working conditions have been made brighter and cleaner, and accidents caused by damp floors eliminated.

Using the Tennant system of floor maintenance, the floors were first reconditioned as shown in the accompanying photographs, then maintained by a systematic program of daily sweeping and periodic rebuffing. The basic power machine is used for initial reconditioning by sandpaper and steel cutters, for steel-wool buffing of initial applications of sealer, and for periodic rebuffing of the refinished floor.

The new hardness and smoothness of Macon's floors were graphically illustrated when a 5-ton Whitin Superdraft roving frame was slid on its own legs, without skids, to a new location in 45 min. It is estimated that repositioning the machines on the floors before reconditioning would have taken 4 to 5 hr.

The increase in materials cost is overcome by the cut in labor costs.



5. *Periodic steel-wool burnishing using a powered, self-propelling machine, removes stains and restores the glossy finish. A vacuum system picks up any soilage.*

Comparison of Floor Maintenance Costs per Month At Macon Textiles, Inc., Macon, Ga.

OLD METHOD (SCRUBBING)

Labor	$268.80
Materials (scrubbing powder, mops, etc.)	37.80
	$306.60

NEW METHOD (DRY-CLEANING)

Labor	$170.00
Materials (steel wool, rolls, seals, etc.)	60.70
	$230.70

***Labor costs** are reduced by one-third at Macon plant by mechanized floor maintenance, and depreciation of floors is retarded considerably.*

HEYDEN chemicals serve the nation's industries

TEXTILES

HEYDEN'S *dependable chemicals* find wide application in textile processing, and in the manufacture of textile dyes.

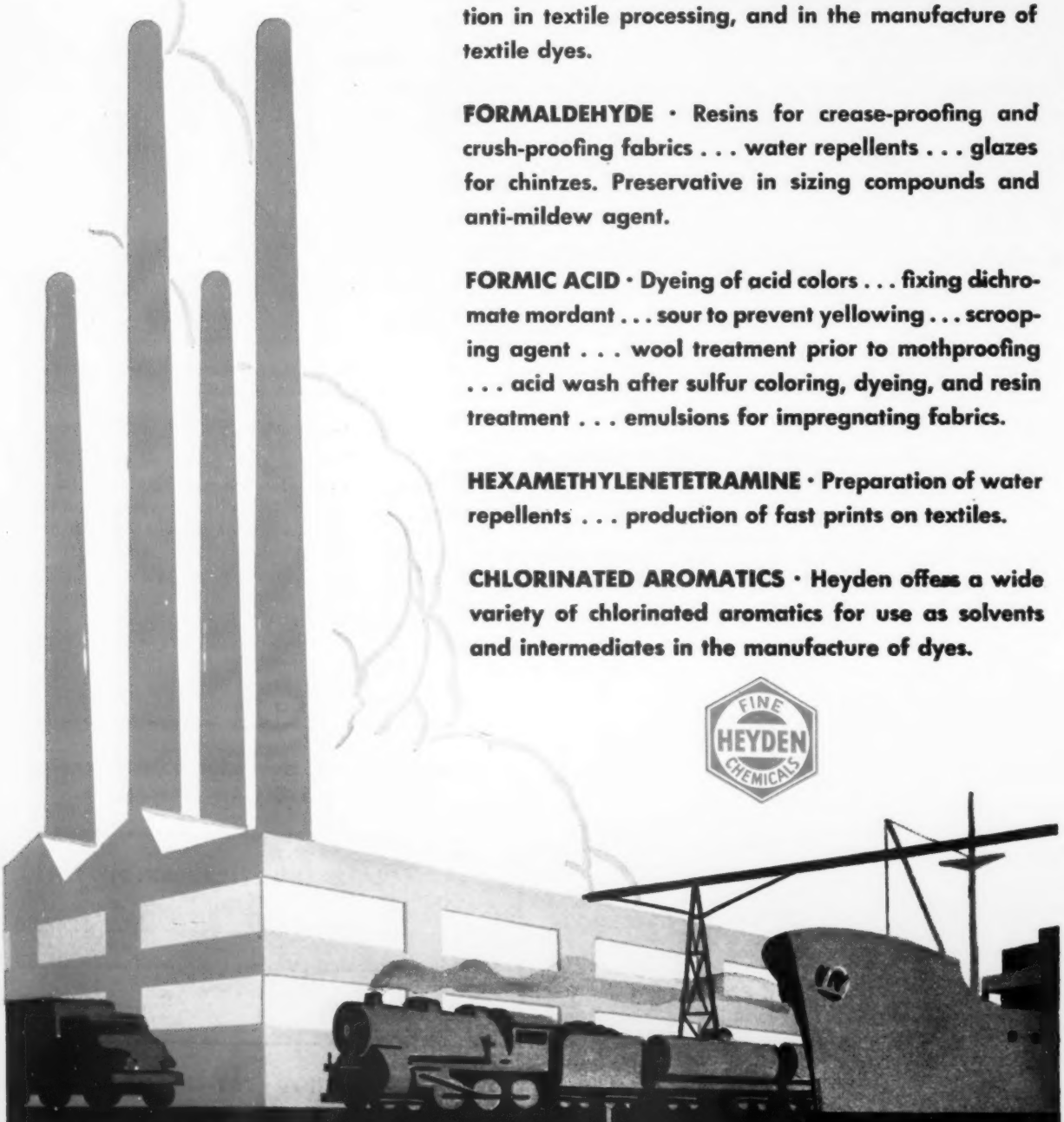
FORMALDEHYDE · Resins for crease-proofing and crush-proofing fabrics . . . water repellents . . . glazes for chintzes. Preservative in sizing compounds and anti-mildew agent.

FORMIC ACID · Dyeing of acid colors . . . fixing dichromate mordant . . . sour to prevent yellowing . . . scrooping agent . . . wool treatment prior to mothproofing . . . acid wash after sulfur coloring, dyeing, and resin treatment . . . emulsions for impregnating fabrics.

HEXAMETHYLENETETRAMINE · Preparation of water repellents . . . production of fast prints on textiles.

CHLORINATED AROMATICS · Heyden offers a wide variety of chlorinated aromatics for use as solvents and intermediates in the manufacture of dyes.

FINE HEYDEN CHEMICALS



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Benzaldehyde • Benzoates • Benzoic Acid • Benzyl Chloride
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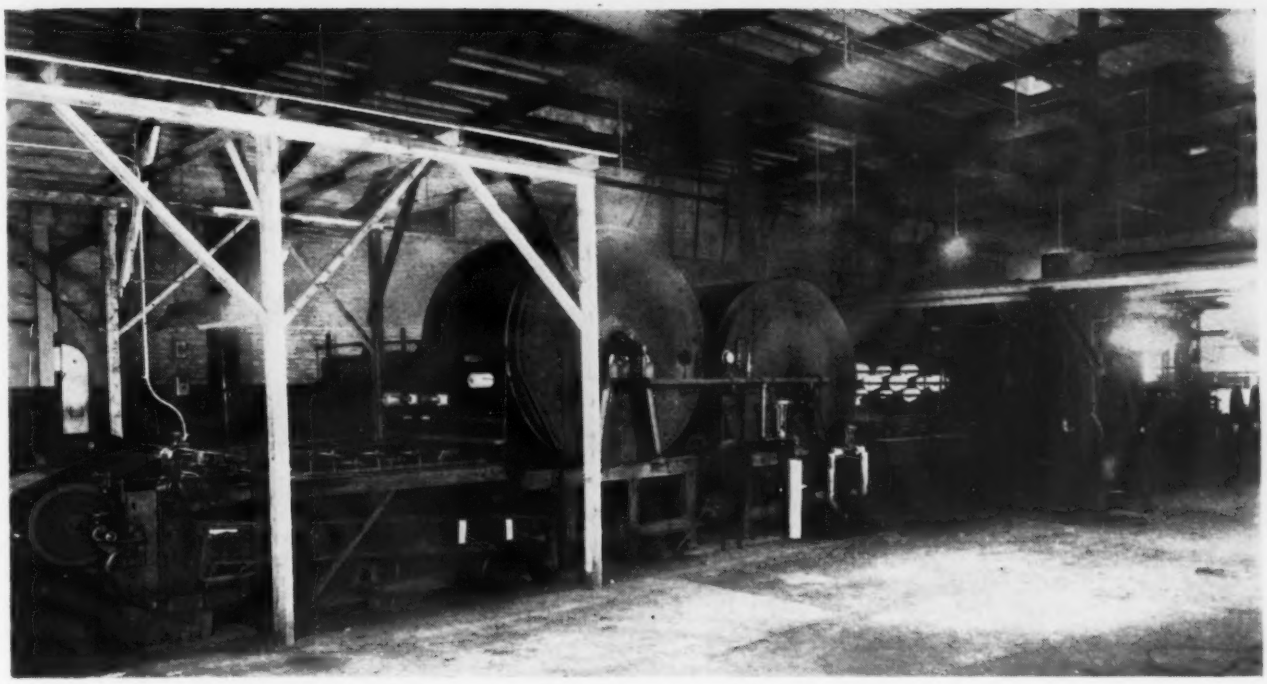
M.D.A. • Paraformaldehyde • Parahydroxybenzoates
Penicillin • Pentaerythritols • Salicylates



The Batchelder dyeing slasher occupies a floor space 90x10 ft.; requires two operators; and dyes, dries, sizes, dries, and beams cotton yarns continuously. The slasher section of the machine may be used separately if desired.

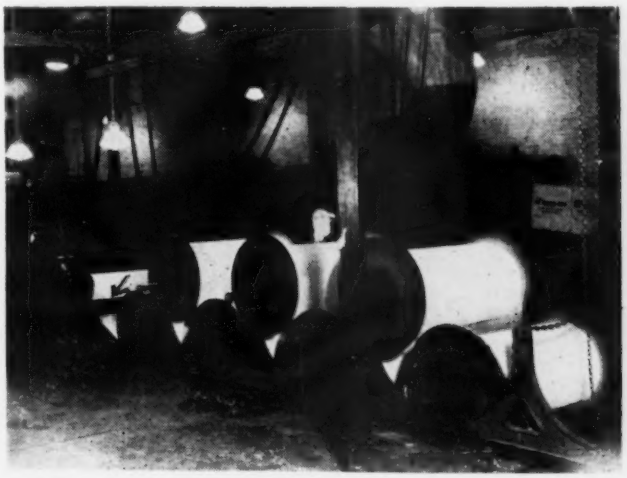
Warp Costs Cut by Continuous DYEING SLASHER

HIGHLIGHTS: *Yarn dyed and sized in single operation—Saves 30% over raw-stock dyeing—Only two operators required—Over 30 yd. of 13s yarn produced per min.*

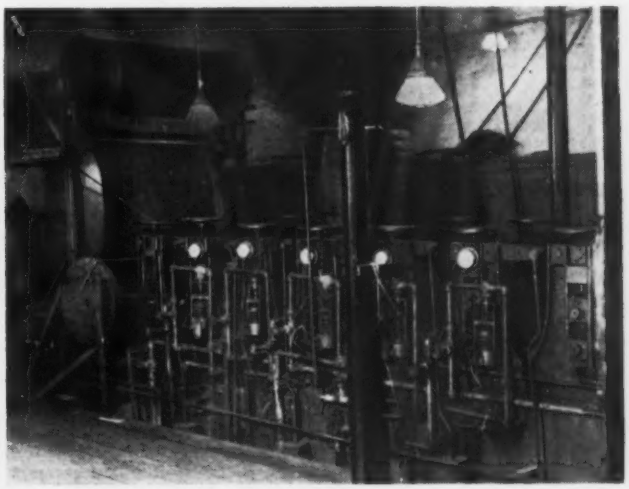
By WILLIAM A. NEWELL, *Assistant Editor, TEXTILE WORLD*

DYEING AND SIZING OF COTTON YARNS in one operation is accomplished by a machine in operation at Empire Cotton Mills, Welland, Canada.

Operating at present only on heavy yarns, the machine dyes, dries, sizes,



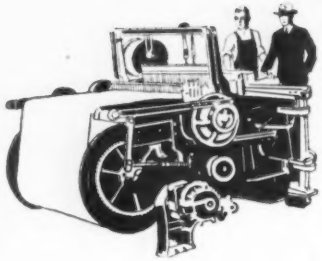
Yarn is drawn from section beams by powered rolls at the beginning of the dye range. A spring-tension (arrow) roller prevents damage by sudden starts.



Power-driven pressure rolls carry yarns through dyeing and washing units of the range. Units can be used for aftertreatments required in other types of dyeing after leaving dye units.

IT TOOK TWO TEAMS TO PERFECT

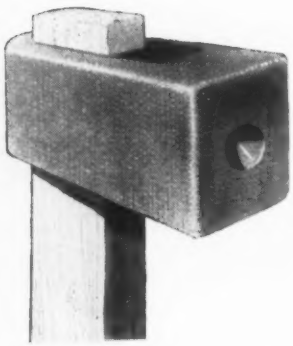
The DENMAN PIONEER



Yours

When your looms called for pickers of greater toughness and resiliency . . . Denman and Terrell got on the job immediately.

But it was only through your fine cooperation and effort that we were able to make test after test . . . under actual operating conditions . . . to determine correct picker characteristics.



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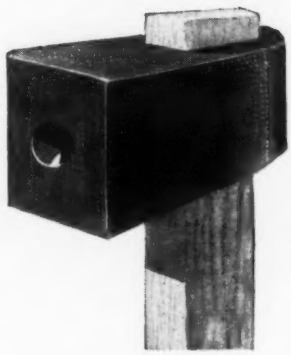
DELUXE
PIONEER

Ours

Armed with your specifications and recommendations, Terrell Field Men and the Denman Research Laboratory set to work.

The result of your efforts and our years of pioneering rubberized fabric loom parts is the Denman Pioneer Picker . . . now famous throughout the industry for LOWEST COST PER LOOM PER YEAR.



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PIONEER

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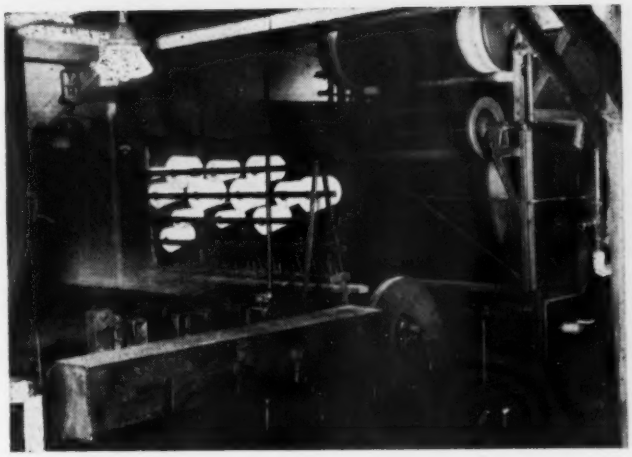
DENMAN TIRE & RUBBER CO.

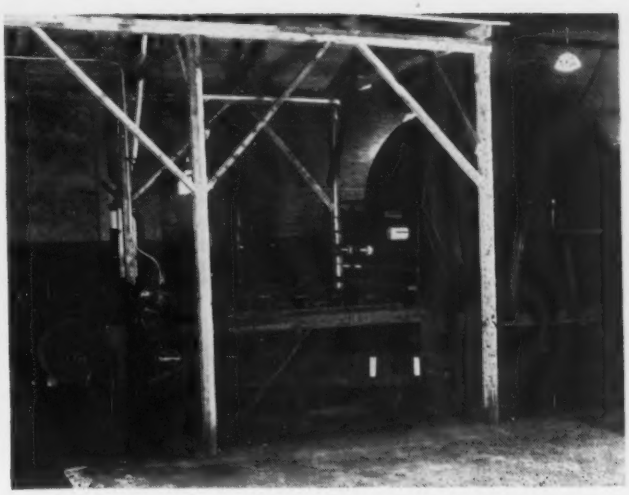
Exclusive Sales Agents

The TERRELL COMPANY Inc.

CHARLOTTE, N. C.



After leaving dry cans, the dyed yarn passes through the size box and onto the first dry can of the second set. At this point, white yarns for stripes or selvage can be added and sized.



After leaving second dry can, yarn passes through split rods and expansion comb onto warp beam, as on conventional slashers.

dries, and winds on a loom beam at a speed of 32 yd. of 13s cotton yarns per min. Figures on production and waste on other size warps and yarn counts are given in the table shown in the column to the right.

The machine is using sulphur dyes at present but can be successfully adapted to other types of dyes. The cost per pound of yarn processed on the continuous-dyeing slasher, including dyeing and slashing labor, and dyeing materials, is about 30% less than the cost of raw-stock dyed yarn, it is reported, and is less than yarn dyed, sized, and beamed by the conventional chain method.

The machine was developed and patented by Nelson Batchelder, and has been in operation in the Welland plant for 7 yr. The success of this machine in its present application has led to its manufacture for distribution by United Steel of America, Inc. The machine was briefly described in the Textile Equipment News section of Textile World in the August, 1947, issue.

Production Figures for the Dyeing Slasher

Sulphur dyes

Type of Cloth	Warp Counts	Number of ends	Color	Production (Yd. per min.)	Waste (% of gray wt.)	Dye as % of wt. of dyed yard	Size as % of wt. of sized yarn
Denim	9s	2500	Black	24	.75	6.8	15.8
Denim	9s	2000	Blue	30	.75	3.0	11.9
Panting	13s	1500 500	Black Gray	32	.75	6.8	16.0
Panting	9s	2350 45	Blue Light blue	25	.75	3.1	14.7
Denim	9s	2500	Blue	24	.75	1.5	12.7
Ticking	16s	1000 2200	Blue White	30	.75	3.5	9.4
Denim	9s	1990	Blue	30	.75	3.6	11.6
Narrow fabric	10/5	616	Khaki	28	1.25	8.0	no size used (plied yarn)

Production and waste figures for various yarn counts of and warp sizes. The 10/5 plied yarn for khaki narrow fabric was dyed and then received waterproofing in the size box.

Slasher Control System

(Continued from page 137)

in the cooking kettle is pumped to the storage kettles. Hand valves control this flow.

Closed-coil steam pipes heat the three storage kettles to maintain the size at a constant temperature of 190° F. Steam-intake valves, opened and closed by air in response to automatic switches in the control cabinet, Fig. 6, regulate the flow of steam for heating the storage kettles.

OTHER IMPROVEMENTS. Various improvements have been made to ensure effective performance of the controls and to aid in the comfort of the workers and in general housekeeping of the slashing department. All moving parts of the slashers are mounted in ball bearings that are cleaned at regular intervals and relubricated as needed. At each section-beam runout, the slasher is blown off with compressed air and mopped. An integral part of maintenance and housekeeping is the prevention of leaks in steam lines, cylinders, and size boxes.

Steam lines are heavily insulated; and heat-exhaust hoods over kettles, size boxes, and cylinders contribute materially to maintaining a comfortable temperature in the room. Rotary fans suspended from the ceiling blow on the fronts of the slashers at the locations where the slasher operators work.

The heavy lifting and conveying formerly connected with the slasher job has been eliminated by the installation of electric hoists and overhead conveyor rails. Switches in the overhead tracks permit beams to be transported to any point of the room.

Convenience of storing section beams, Fig. 7, and loom beams is provided for by means of two-tier racks. The section-beam racks, one behind the creel of each slasher, will accommodate 25 to 30 beams. A rack at the back and to one side of the slashers stores 30 to 35 loom beams, and one at the front of the slashers provides space for 30 to 35 empty loom beams.

PYROTEX

SCOURING AGENT

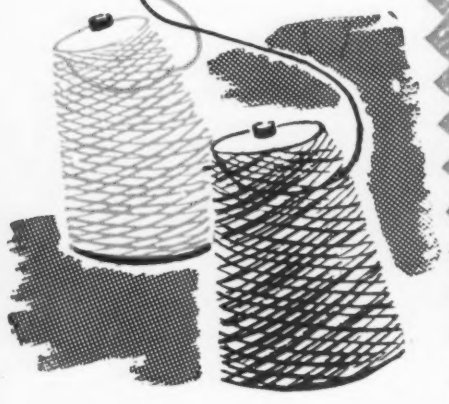
PYROTEX is a most effective scouring agent having excellent wetting out properties which assure immediate scouring action.

PYROTEX can be used in scouring and dyeing of wool, worsted, rayon, acetate, cotton and nylon.

PYROTEX is not affected by acid, alkali or hard water, and will not precipitate or form scum.

PYROTEX, being neutral, is very adaptable for dyeing of acetate and mixtures thereof.

PYROTEX can be used alone or with soap and alkalies. In scouring of woolens and worsteds for piece goods dyeing, it is extremely important that goods be thoroughly free from fats which may cause shaded or cloudy goods. However, this is not the case with PYROTEX. Even though not thoroughly washed out it will assist in dyeing.



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Reeves Mill Employees Wear FUNCTIONAL CLOTHING

HIGHLIGHTS: *Work clothes functionally designed to suit requirements of each job and boost morale—Comfort, coolness and attractiveness incorporated—Workers reported enthusiastic.*

EMPLOYEES OF THE MILLS of Reeves Brothers, Inc., are wearing new functionally designed work clothes at their jobs. Designed by Mrs. Helen Cookman, leading industrial-uniform designer, in response to employees' prewar requests, the clothes are designed to provide maximum comfort, durability, and attractiveness, and to boost morale. Mrs. Cookman based her design on comprehensive employee interviews and extensive tests, and has produced a series of garments suited to individual types of mill jobs.

The uniforms are made from Reeves fabrics by independent cutters and will be sold to employees through mill-village and nearby stores at cost.

Workers at the Reeves plants are enthusiastic over the new uniforms, it is reported; and it is predicted that these garments are forerunners of a new era of industrial work clothing.

Card-room workers will wear shirt and trousers of 6- and 8-oz. herringbone twill for comfort and coolness. Garments are cut large for coolness and ease of movement. Leg pockets are replaced by four extra-large front and rear pockets. A wide band runs around the neck and down the front, and buttons are replaced by concealed snap fasteners.

Girls working in Reeves spinning rooms will wear an apron-dress jumper of 6-oz. herringbone twill over a dress of Glengarrie poplin. Dark gray colored to show less dirt, the apron has a diagonal pocket for reed-hook and handkerchief, and extra-large skirt pockets for cotton waste. Dress is of contrasting soft yellow and may be worn between home and mill.

Warper tenders at Reeves Mills are wearing an overall-and-blouse combination. Full cut of trousers and short raglan sleeves permit freedom of action, coolness, and comfort. Shirt tails are extra long to prevent pulling out, and trousers are a black-brown color that won't show dirt. Pockets for reed-hook and other accessories are functionally located. Overalls are 8-oz. herringbone twill, and shirt is contrasting Nile-green poplin.

An attractive all-purpose smock has been provided for girls working in the cloth room. Semi-fitted and buttoned down the back, the smock is generously cut for comfort and coolness. It is made from 6-oz. herringbone work twill of a soft blue color and has two large front patch pockets.

For fixers and mechanics, a low-back overall-and-shirt outfit has been provided. Straight, free cut allows functional efficiency as well as comfort without binding or chafing. Overall material is 8 oz. herringbone twill. Leg pockets have been eliminated, and back pockets are slanted to hold tools in when the wearer sits down. The shirt is of 6-oz. herringbone twill of earth-brown color. A neck band has replaced the old collar, and long sleeves are provided for instances where they are required for safety purposes.

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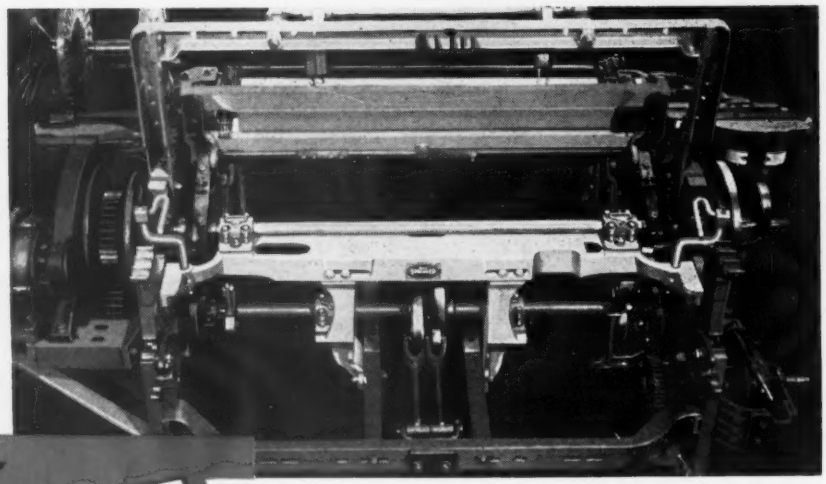
YOU MAY GET NEW, HIGH-SPEED LOOMS IN THE YEARS AHEAD. YOU NEED HIGH-SPEED WEAVING NOW, WHILE THE MARKET DEMANDS IT -- AND YOU CAN GET IT QUICKLY BY INSTALLING HUNT SPREADERS IN YOUR WEAVE ROOM.



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Shown as the light portion of the loom photo above, the patented Hunt Spreader assembly is made in sizes to fit practically any loom.

The patented Hunt Spreader braces and strengthens the loom frame, and adds two bearings each to the crankshaft and camshaft. After installation of Hunt Spreaders, looms are steadied, and they operate more smoothly than when they were new. Speeding up to produce more cloth is possible and increases up to 36 picks per minute are reported.

Production of Hunt Spreaders is geared to present needs. More than 1000 units per month are being made currently. Installation, too, is accomplished with a minimum of interruption. Our trained erectors can install fifty—or five hundred—Hunt Spreaders, quickly and easily. We welcome inquiries. For facts, figures, and immediate action, wire, phone, or write us now!

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THE RUHR—
VALLEY OF DECISION

FOR AMERICANS and for American business the most important single spot on earth today is the Ruhr Valley of Germany—a valley no bigger in area than the State of Rhode Island. Upon recovery in the Ruhr hinges recovery in Europe. Upon recovery in Europe hinges the peace of the world.

No machine can run with its most important part missing. Western Europe without the Ruhr is a dead machine. Before the war, over half the coal and steel produced in the Western part of Continental Europe came from this one little valley. Today, the fact is that no other region in Europe has the technical skills and enterprise to produce the industrial supplies which Europe must have if it is to help itself back to a self-supporting economy. And, after observing Europe for many weeks, I am convinced that no one but the United States can successfully supervise the rebuilding of the Ruhr.

If you will keep four considerations in mind, as the international politicians gamble, you can easily tell whether the United States is playing its proper role in the rehabilitation of the Ruhr. Here are the four considerations:

I. We are paying for the Ruhr rehabilitation (or the lack of it).

II. We alone have the skill and enterprise to supervise its rebuilding.

III. It will be a tough organizing job requiring money, hard work, and outright sacrifice on the part of management men and technicians.

IV. We had better do it well if we love our children.

I

We are paying for rebuilding the Ruhr—or we soon shall be. The British now control the Ruhr, its government and its industry. They have been paying out about four hundred million dollars—American dollars—a year to buy the food, raw materials and equipment needed to rebuild the Ruhr. The British must spend American dollars for these supplies because the supplies can not be bought anywhere but in America. Thus far the British have, in effect, obtained the dollars which they spend for the Ruhr by drawing them out of the $3,750,000,000 loan which we granted Britain last year.

Now the loan is fast running out. The British lack dollars and other assets. We must take over, directly or indirectly, the dollar expenditures for rebuilding the Ruhr. We shall pay for it. Therefore—

II

We should supervise it. The British have been running the Ruhr's industry. They might conceivably suggest to Washington that they continue to run it while we pay the bill. *That we should never agree to.* There is a sound old rule that he who pays the piper shall call the tune.

Perhaps we would not need to invoke that rule if the British had done a good job reviving the industries of the Ruhr. *They have done a poor job—physically and ideologically.*

The physical output of the coal mines and steel mills of the Ruhr in recent months was actually smaller than at the first of the year. Production of coal amounts to little more than half of the pre-war 127 million tons per year. Steel productions limps along at one-sixth of the pre-war rate—far below the volume permitted even under the present low level-of-industry plan for Germany.

Ideologically, the British Labor Government has tried to export to Germany the brand of socialism which is making such a dubious record at home. Foreign Minister Bevin—although he may now have misgivings about it—committed himself to nationalization of the Ruhr's coal and steel industries. British representatives have pushed hard to get General Lucius Clay, our able military governor in Berlin, to agree to socialization of the Ruhr. So far, he has resisted this pressure, but our State and War Departments and we as individuals must back him up to the limit if he is to continue to combat this pressure successfully.

Even if the British government were not socialist, there would be good reason for questioning the ability of Britain to rehabilitate the industries of the Ruhr. In recent generations, the British management class has shown itself more

interested in cartels, restricting output, and allocating markets, than in full-steam, ingenious enterprising production.

Certainly the British must remain full partners in the *political* administration of Germany. No one suggests anything else. However, their recent production record demands turning the job of revitalizing the Ruhr industries over to the nation which is paying the bill and which leads the world in production.

If we have any faith in the business philosophy by which we have lived and prospered for 170 years, we should demonstrate that that philosophy still is dynamic by taking up the burden of the Ruhr.

III

It will be a tough job. It will require men and supplies and money from the United States. It can not possibly be done in less than five years. A list of some of the necessary steps shows how hard it will be.

A. Plans for socializing the Ruhr should be shelved quickly. The industries there should remain in trusteeship for five years. Then the Germans themselves should decide their ownership; let us hope that by that time we can demonstrate to them that private ownership and private initiative mean high production, good distribution and high wages.

B. The top supervising management jobs—both the top policy and the top technical jobs—required outstanding business ability. That is why American business men must be willing to go to Germany, sacrificing comfort and leisure, and even income, if necessary.

C. Germans should take over the management job at the operating level. The Germans are good technicians. They have a greater incentive than anyone else for getting the Ruhr back in working order. That incentive should be harnessed.

D. Special effort should earn special rewards. There is nothing wrong with the Ruhr (or the rest of Europe) that hard work will not cure. Before a man will work hard, he must feel that his work will advance him and his family. That simple motive, which powers our whole economy, must be revived in the Ruhr. To revive it requires enormous ingenuity and work... a new currency... a logical customs union... a sensible ration system... enough food, clothing, housing and consumer goods so that the worker can buy something with his currency and his ration points.

E. America will have to furnish a good share of these foodstuffs and supplies. Certain key items of equipment also will be needed. Only as we succeed in our job can this flow be diminished.

F. A sensible priorities system must channel Ruhr coal and steel into those uses which, in turn, will further increase output. Repair parts for railroad cars should stand high on the list. Housing, coal equipment and machine tool parts should come ahead of the automobiles and permanent steel bridges which at times have been accorded preference.

German technical management of industry in the Ruhr—point C above—need not mean *political* control of the Ruhr by some future sovereign German state. As the French know, the Ruhr, next to the atomic bomb, is the most dangerous weapon in the world. It is the arsenal without which no European power, even Russia, would dare start a war. There is no sense in turning that arsenal back to the *political* control of a nation which twice in 25 years used it for aggression. (And three times since 1870.) Surely we have enough resourcefulness to let the Germans who live in the Ruhr run the industries there without turning political control over to a central Prussian state.

This partial list shows how much hard work and statesmanship the United States must put into the Ruhr. But—

IV

We had better do it if we love our children. If we do not do this job—if we should pull out of Germany or fail there—we leave behind us a vacuum which neither Britain or France has the strength or ability to fill. Russia has the will and, if left unopposed, the power to fill that vacuum. Therefore, the day we fail or the day we pull out of Germany, the third world war takes a long step closer to us and certainly to our children. What greater incentive does any American need to work for than our success in this field?

If we succeed, the western zones of Germany in conjunction with Belgium and Holland can become self-supporting in three to five years. That way lies recovery for all Europe. That way lies peace for the world. That way lies vindication for the American business system in which we believe—the system of competitive private enterprise, with freedom for the individual and his initiative.

President McGraw-Hill Publishing Company, Inc.

The Mile-A-Minute TRAVELER Must Be Right

HIGHLIGHTS: *To capitalize on ring and traveler improvements, mill must know how to select the correct traveler—Lack of standardization of numbers among traveler manufacturers is no great obstacle to proper selection—Correct selection, careful ring and traveler maintenance, and improved materials increase life of traveler.*

By SETH CARTER

TABLE I—Comparison of Travelers

Weight in grains 10 travelers	National C. Wilson American U. S. Square point	Hicks	C. Wilson U. S. Round point	Victor Sterling Standard Dary	Recommended for yarn no.
4	13-0	8-0	11-0	13-0	40
4¼	12-0	7-0	10½-0	12-0	38
4½	11-0	6-0	10-0	11-0	36
4¾	10-0	5½-0	9½-0	10-0	34
5	9-0	5-0	9-0	9-0	32
5¼	8-0	4½-0	8½-0	8-0	28
5½	7-0	4-0	8-0	7-0	24
5¾	6½-0	3½-0	7½-0	6½-0	23
6	6-0	3-0	7-0	6-0	22
6½	5-0	2½-0	6-0	5-0	21
7	4-0	2-0	5-0	4-0	20
7½	3-0	1½-0	4-0	3-0	19
8	2-0	1-0	3-0	2-0	18
8½	1½-0	½-0	2-0	1½-0	17
9	1-0	1	1-0	1-0	17
10	1	1½	1	1	16
11	2				16
12	3				15
13	4				14
14	5				14
16	6				12
18	7				11
20	8				10
23	9				8

On numbers 2 and heavier, the weights of 10 travelers for each traveler number are the same for all makes listed above.

SPRUNG OVER THE TOP FLANGE of the spinning ring, the circular or slightly elliptical steel clip known as the traveler performs two important functions: it permits twist to be put into the yarn strand delivered by the front roll, and assists in the winding of the twisted yarn onto the bobbin. The steel traveler is hardened, tempered, polished, and finished to a thousandth part of an inch to obtain correct weights for an infinite number and types of rings, yarns, and yarn counts. Though recent research into plastics indicates that some progress has been made with materials other than steel, the steel traveler in the sizes normally used in the spinning of cotton yarns has the advantage of weight and small size. Its disadvantage, frictional wear by contact with the metal ring, has been reduced over the years by improvements in the finish of the steel and in the shape and construction of the traveler itself.

The operations of twisting and winding performed by the traveler must be accomplished without excessive tension, ballooning, and whipping of the yarn. The amount of twist inserted is governed by the relative speed of the spindle and surface speed of the front roll; the traveler automatically adjusts itself to changes in these related speeds, at the same time continuing its functions of permitting twisting, of winding, and of tensioning the strand.

The general form of the steel traveler is shown in Fig. 1. The principal parts are the bow, horns, and flange. The center of gravity and center of symmetry, shown by dots, are important considerations of traveler design. An improved, modern design has a more elliptical shape as in Fig. 2. In this traveler, the center of gravity and center of symmetry are almost at the same place. The construction is believed to offer better balance in operation; i.e., it overcomes tipping on the ring flange and dragging of traveler horn against the inside web of the ring. Varied angles of horn are obtainable as a result of research by the various traveler manufacturers. Angled rings are also obtainable.

The position of the traveler during its operation on the ring is shown in Fig. 3. The centers of gravity and symmetry shown by a dot are located within the ring flange, an ideal location from the standpoint of proper operation. A high-speed camera view of this traveler in actual operation is shown in Fig. 4; and a similar view of

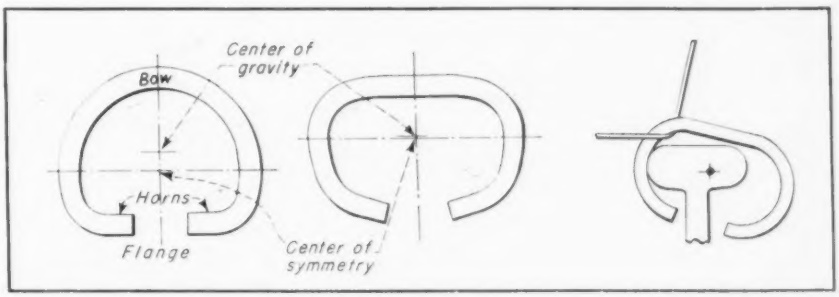

FIG. 1 **FIG. 2** **FIG. 3**

FIG. 1. *The steel-clip traveler is simple in design; its principal parts are the bow, horns, and the flange. From the standpoint of operation, its critical areas are said to be the centers of gravity and symmetry shown by the dots. Note the positions of these centers on the conventional traveler above and compare them with those on the elliptical traveler in Fig. 2.* **FIG. 2.** *The elliptical traveler has angled horns and displaced centers of gravity and symmetry. The construction brings the two centers closer together, a factor which is said to offer better balance in operation.* **FIG. 3.** *The ideal position of the traveler when in operation results in the centers of gravity and symmetry being within the ring flange as noted by the dot above.*

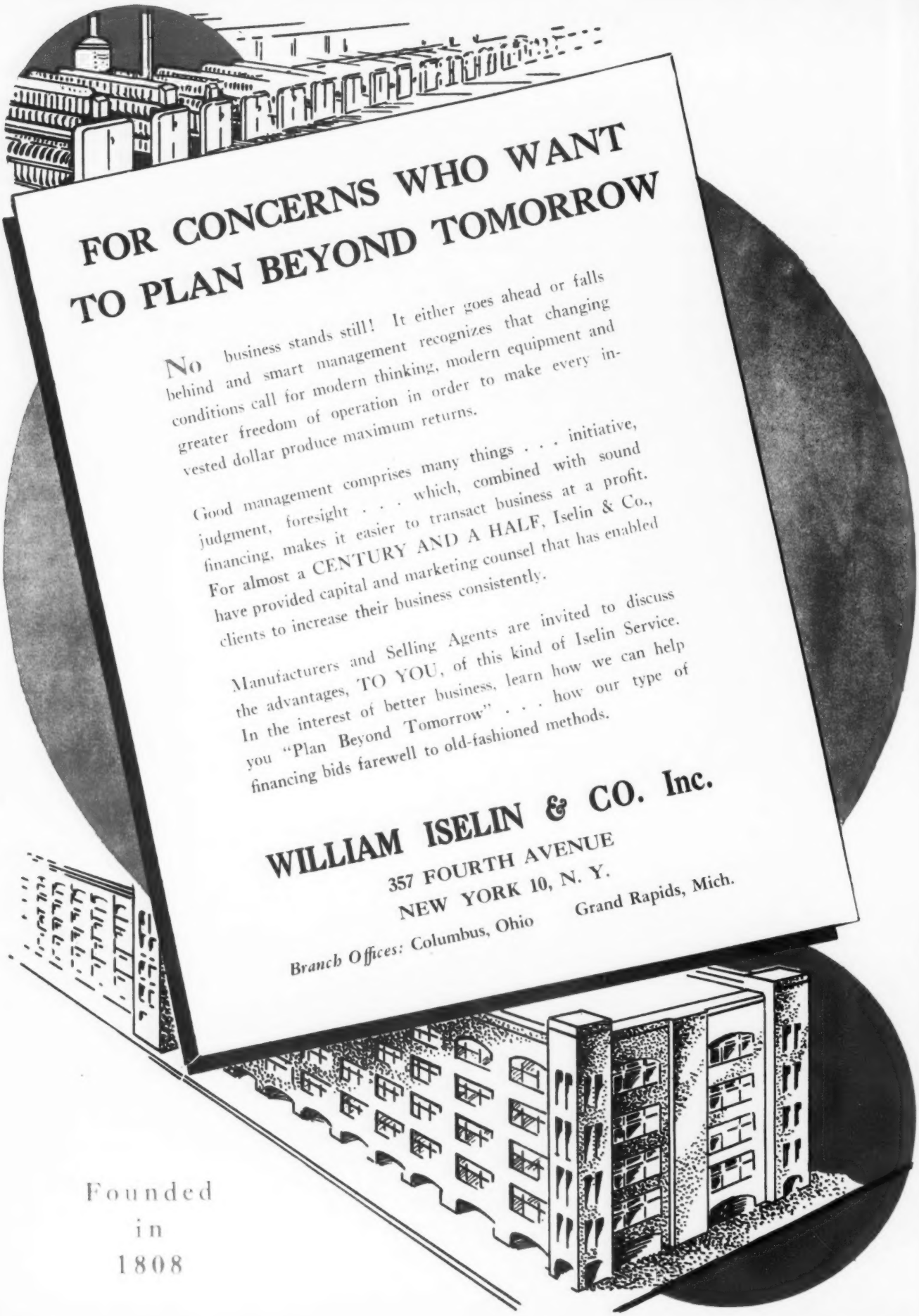

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TABLE II—Typical Actual Organization Range
7s to 30s Hosiery Yarn

	Yarn No.	Size ring	Gage	Speed spindles	Flange No.	Trav. No.	Circle No.	Wt. gr. 10 Trav.	Twist	Dia. bobbin	Type wind	Stock	Separators
7" Traverse	7	2½"	3¼"	3600	2	13	3	36	Hosiery	⅞"	Combination	Carded cotton	Yes
	10	2¼"	3¾"	5100	2	9	2	23	Hosiery	⅞"	Filling	Carded cotton	None
	15	2¼"	3¾"	5900	2	7	2	18	Hosiery	⅞"	Filling	Carded cotton	None
	20	2¼"	3¾"	6300	2	3	1½	12	Hosiery	⅞"	Filling	Carded cotton	None
	25	2⅛"	3½"	7400	2	1	1	10	Hosiery	⅞"	Filling	Combed cotton	None
	30	2"	3½"	8100	1	2/0	1	8½	Hosiery	⅞"	Filling	Combed cotton	None

an improperly designed traveler is shown in Fig. 5.

TRAVELER DIMENSIONS. Travelers must be selected to fit the ring flange. Flange dimensions are as follows:

No. 0 flange—$\frac{3}{32}$ in.
No. 1 flange—$\frac{1}{8}$ in.
No. 2 flange—$\frac{5}{32}$ in.
No. 2½ flange—$\frac{11}{64}$ in.
No. 3 flange—$\frac{3}{16}$ in.
No. 4 flange—$\frac{7}{32}$ in.
No. 5 flange—$\frac{1}{4}$ in.
No. 6 flange—$\frac{9}{32}$ in.

Flange dimensions can be more easily remembered by adding $\frac{3}{32}$ in. to the number of the flange expressed in 32nds. For example, a No. 2 flange $(2/32 + \frac{3}{32})$ is $\frac{5}{32}$ in.

As shown in the comparative table of traveler numbers, Table I, the numbers and corresponding weights of travelers may vary slightly according to the manufacturer. For this reason, it is advisable to specify the weight in grains of 10 travelers of each number when ordering travelers. Other information may be required: such as make, type, flange and circle numbers, and whether round or square points.

There is no uniform standard used by the traveler manufacturers in designating circles numbers. The numbers used may designate the radius of an arc of the circle, or they may be arbitrary figures used to specify certain shapes or circumferences. Spinning-room overseers should compare the circle of the delivered traveler with the circle and number used or received on previous orders.

However, some of the traveler manufacturers have adopted the use of numbers to designate their circle sizes. Beginning with circle No. 1 for the smallest circumference, these numbers increase in increments of ½ to the larger circumferences. However, the numbers used by one traveler manufacturer will not identify the circle number of another make of traveler.

THE RIGHT TRAVELER. An increase in yarn size requires an increase in traveler circle; and the larger the circle the greater the space between traveler bow and ring flange. Too large a circle will cause many traubles, one of the most common resulting from the yarn slipping out of the traveler during the doffing operation. In general, the selection of the proper circle of traveler can be determined only by experience or by the aid of proper records which show the circle numbers previously run on similar yarn numbers.

Such a record is illustrated in Table II for a few typical yarn numbers in the range from 7s to 30s. Similar lists of the complete range of yarn numbers made in the mill will simplify the problem of traveler selection, but strict adherence to the list may not always be possible because of the many conditions which compel the mill to deviate from established customs. However, such a list will determine the logical starting point, or first choice of traveler.

The lack of an exact formula for determining the correct traveler required for a particular yarn is no great inconvenience to the spinning overseer. With the aid of a record such as shown in Table II, and an interesting deduction on the relationship between traveler and yarn weights, he should have little difficulty in finding the proper traveler.

By referring to Table II he will find that the weight of the yarn being spun bears a fairly close relationship to the weight in grains of the traveler used. This relationship provides a formula for roughly estimating the

(*Continued on page 258*)

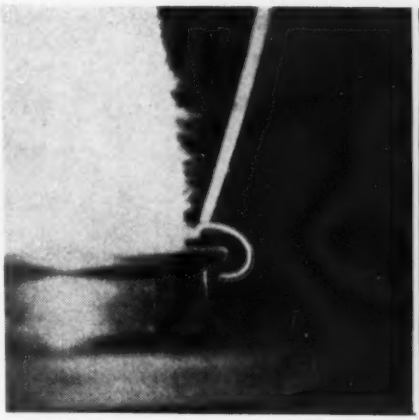


FIG. 4

FIG. 5

FIG. 4. *The traveler in actual operation as shown by the high-speed camera is almost in the ideal position sketched in Fig. 3.* **FIG. 5.** *An improperly designed traveler as shown by the high-speed camera. Its position is far from the ideal position as outlined in Fig. 3, and its arc or circle is almost wholly free of the ring flange thus placing the brunt of wear upon the tip of the horn on the inside ring flange.*

TABLE III—Speed of Travelers in Feet per Minute

Dia. of ring, in.	Spindle speed in r.p.m.								
	6000	6500	7000	7500	8000	8500	9000	9500	10000
	Speed of traveler in ft.								
1¾				3436	3665	3894	4123	4352	4582
1⅞				3681	3926	4172	4417	4662	4908
2			3665	3927	4189	4450	4712	4974	5236
2⅛		3615	3894	4172	4450	4728	5006	5284	5563
2¼		3829	4123	4418	4712	5006	5301	5595	5890
2⅜	3730	4041	4352	4663	4974	5285	5596	5907	6218
2½	3927	4254	4581	4908	5236	5563	5891	6218	
2⅝	4123	4467	4810	5154	5497	5841	6185		
2¾	4319	4679	5039	5399	5759	6119			
2⅞	4515	4891	5268	5644	6020				
3	4712	5105	5497	5891	6283				

NEW—

Chromacyl® Pink B

An addition to Du Pont's line of "Chromacyl" colors . . . particularly well suited for application to woolens and worsteds, either in self shades or in combination for suitings, bathing suits, sportswear, and rugs. Extremely level dyeing, "Chromacyl" Pink B possesses very good fastness to dry cleaning and perspiration . . . good resistance to washing and light.

E. I. du Pont de Nemours & Co. (Inc.), Dyestuffs Division, Wilmington 98, Delaware

Spiral Designs Versatile In CIRCULAR KNITTING

HIGHLIGHTS: *Relationship of pattern wheel to number of needles is important factor — Formulas express pattern area relationships — Width of area is greatest common factor of number of needles and divisions on pattern wheel—Designer may choose from several methods to achieve his effects once the principles are known.*

By KAREL REHAK

SEVERAL TYPES of circular knitting machines feature spirals in the produced designs. This is the natural effect of a pattern wheel the circumference of which does not divide the number of needles in the machine without a remainder. In such spiral designs, the number of divisions on the pattern wheel is not a whole-number factor of the number of needles in the machine.

For the designing of patterns of this kind, it is an advantage to know the relation of the pattern wheel to the needles in the machine and their relation to the width, depth, and rise of the pattern area. When these relations are clear, it is simple to analyze a pattern and to find the wanted values or to find a new pattern area for a special purpose and to make use of other-than-rectangular areas where it is necessary.

As an example, a given number of needles in the machine and only one pattern wheel will be used for explanation.

Fig. 1 is a sketch of the machine circumference and a pattern wheel. There are 23 widths in the circum-

TEXTILE WORLD here presents a thorough investigation of the relation between the needle number and the pattern wheel of the circular knitting machine.

The three resulting equations are applicable to any sort of circular knitting machines in which the pattern wheel does not divide the number of needles without a remainder. Such machines are circular knitting machines for outerwear, interlock machines, jacquard machines, loop wheel machines of the tricot type, and circular tie machines.

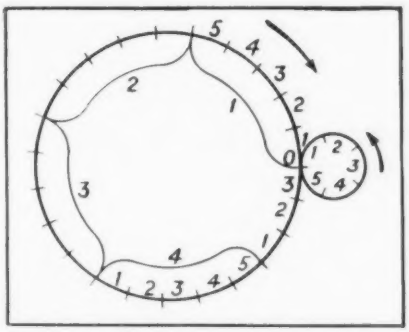


Fig. 1. *In this machine, the 5 divisions of the pattern wheel do not divide into the 23 widths in the circumference a whole number of times.*

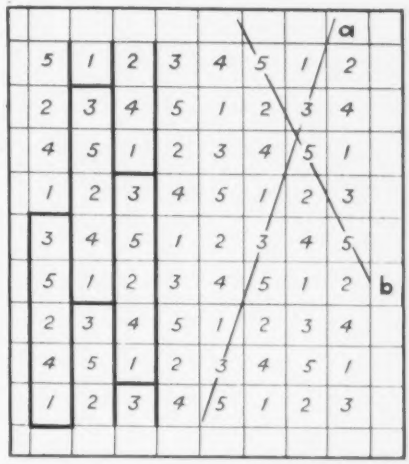


Fig. 2. *Diagrammatic presentation shows relation of widths. Line a shows formation of spiral effect.*

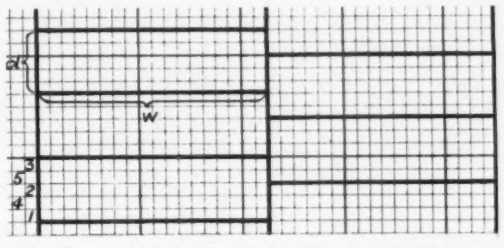


Fig. 3. *The actual pattern area is shown for the first example. From this can be derived an equation for determining several pattern-area relationships.*

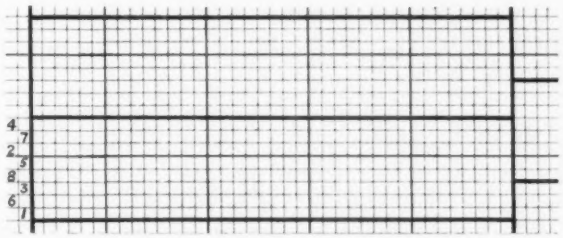


Fig. 4. *Outlines of a pattern area can be drawn on paper. Area above is for one pattern wheel.*

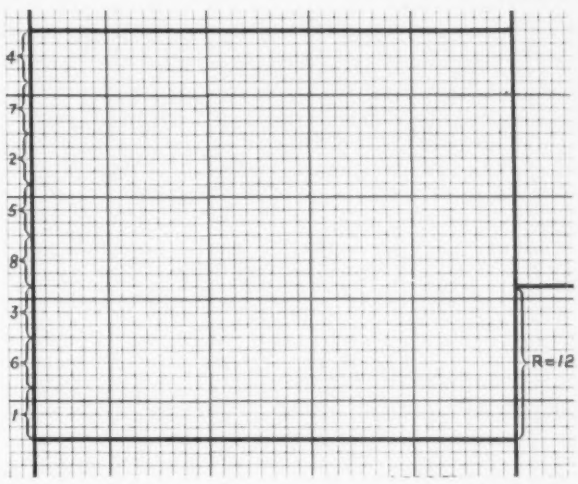


Fig. 5. *This pattern area is for four feeds. Order of widths is shown at side.*

Two Famous

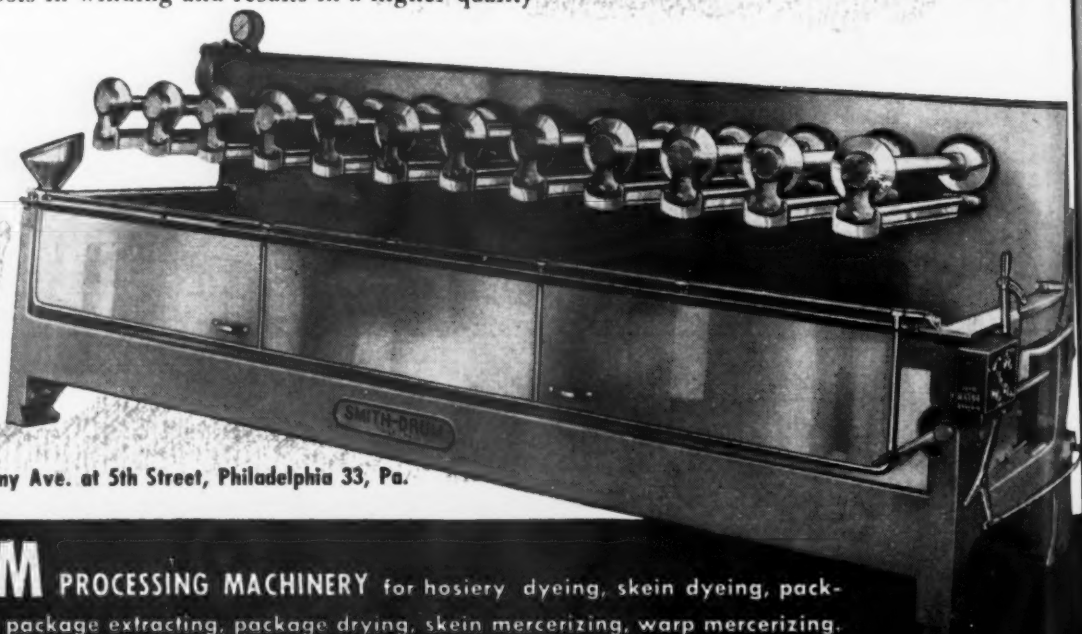
SMITH-DRUM

Smith-Drum Hosiery Dyeing Machine

This famous machine has reduced operating and maintenance costs to a bare minimum in most of the larger mills in the United States and Canada. Many of these machines have been in daily operation for 25 years and longer. This dependability is largely responsible for the fact that nine out of every ten pairs of hosiery made in this country are dyed in Smith-Drum machines. Remember this record of performance when you consider the purchase of new equipment.

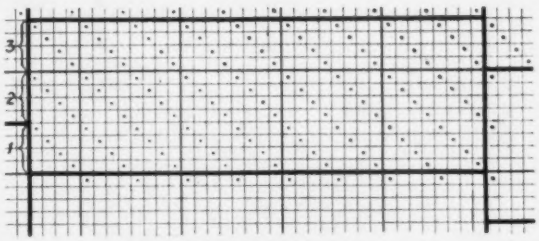
Smith-Drum Skein Dyeing Machine

This is the machine that has revolutionized skein dyeing by "moving the liquor instead of the yarn"! Elimination of snarling and breaking of yarn saves time, trouble and costs in winding and results in a higher quality finished fabric. Savings in dyestuffs, steam and water . . . lower labor costs . . . faster dyeing time . . . result in a 25% to 30% cut in dyeing costs. Larger batches and more of them per day increase production as much as 50%. Write for more complete information.



SMITH, DRUM and CO., Allegheny Ave. at 5th Street, Philadelphia 33, Pa.

SMITH-DRUM PROCESSING MACHINERY for hosiery dyeing, skein dyeing, package dyeing, beam dyeing, package extracting, package drying, skein mercerizing, warp mercerizing.



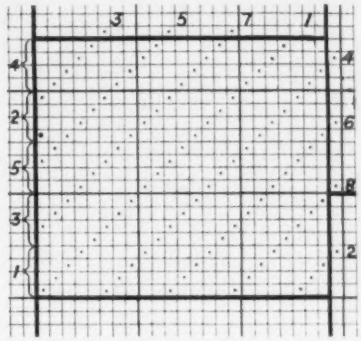


Fig. 7

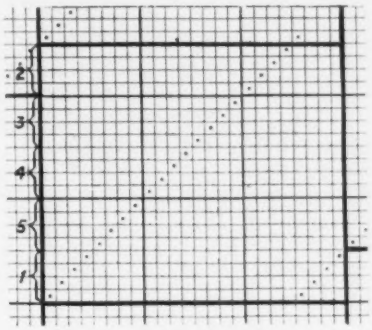


Fig. 8

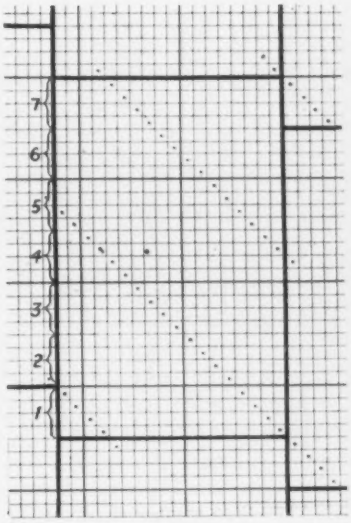


Fig. 9

Figs. 6, 7, 8, and 9. *Only four suitable pattern areas can be determined when size of pattern wheel is within range of 105 to 126 divisions. All four take diagonals of different repeats without showing rise.*

ference of the machine and 5 widths in the pattern wheel. The pattern wheel divides the needles of the machine 4 times, and there is a remainder of 3 widths before the pattern wheel commences the second course at 0.

After going once around the needle circumference, the pattern wheel will place the fourth width above the first width of the first course, because the remainder is using up the widths 1, 2, and 3. If the fourth width has to be put above the first width, the five widths must not only be equal in size, but one width must divide without a remainder the circumference of the machine and also of the pattern wheel.

(*Continued* on page 236)

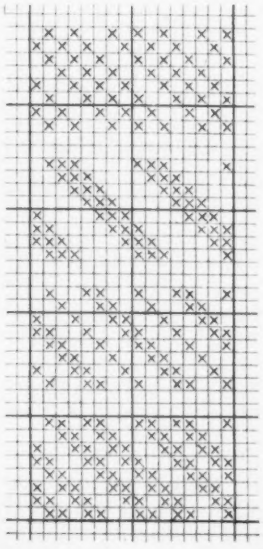


Fig. 10. *Four diagonals are based on a 14 repeat.*

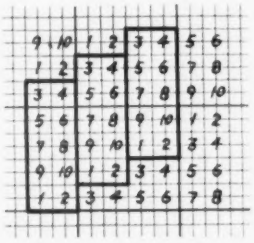
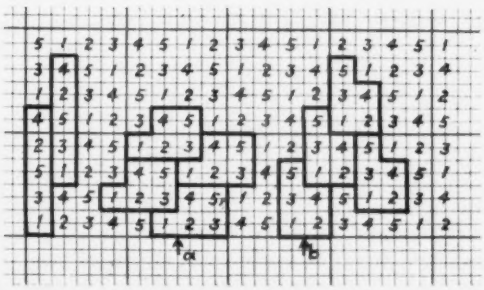


Fig. 11. *A pattern area is shown with a double width of 24 and half the chosen depth of 5.*

Fig. 12. *L-shaped areas can be evolved from every rectangular area.*



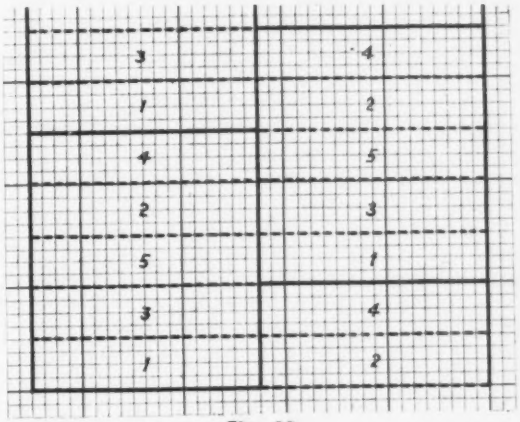


Fig. 13

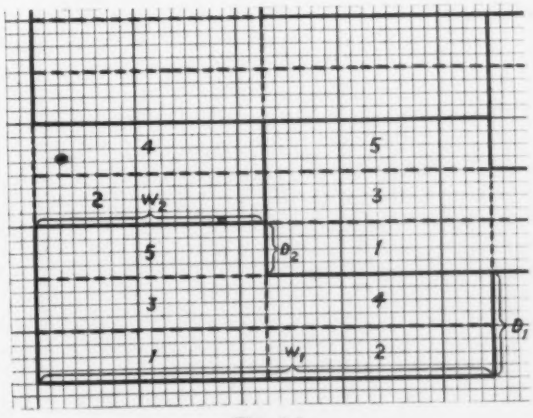
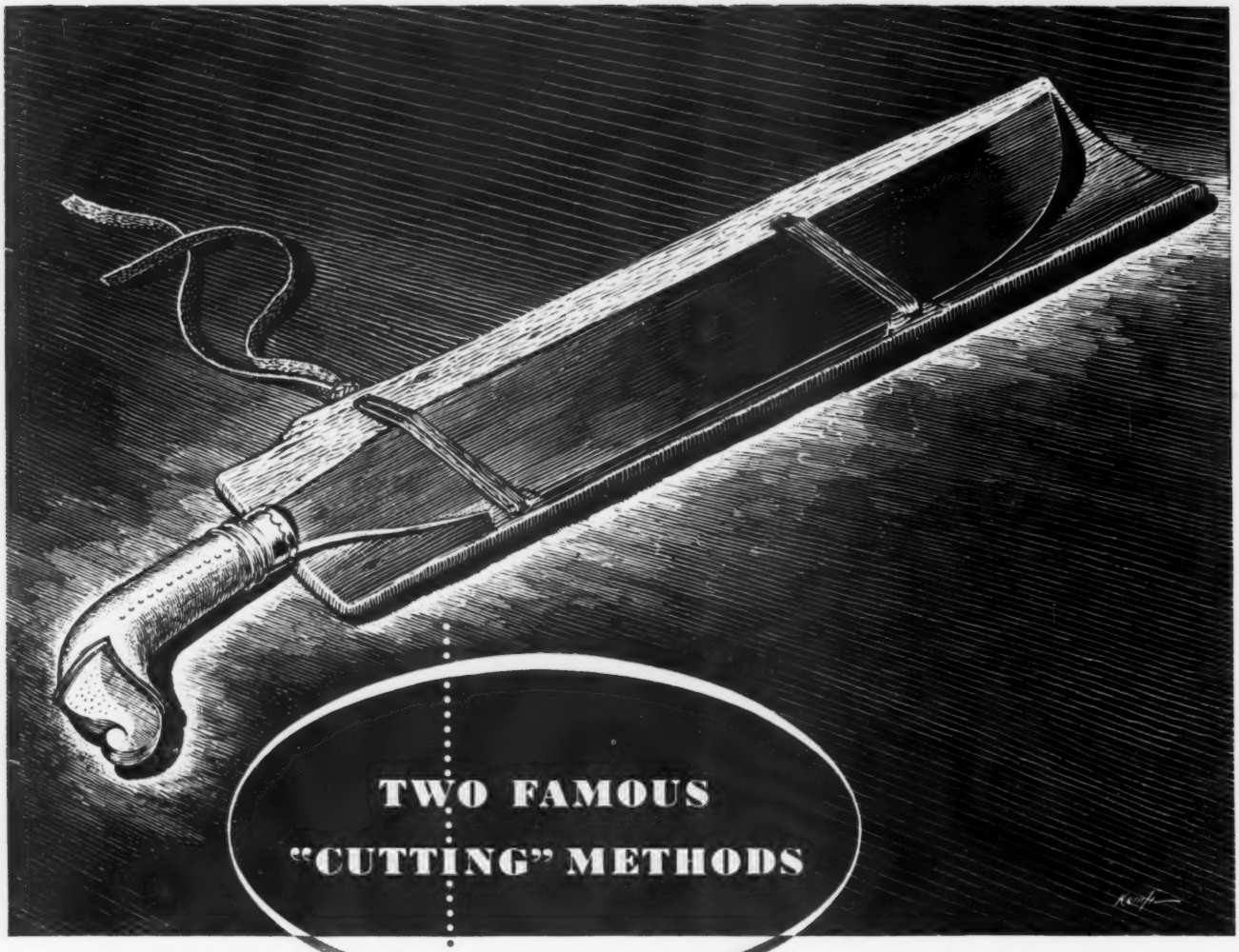


Fig. 14

Figs. 13 and 14. *L-shaped patterns in Fig. 14 can be derived from rectangular pattern areas in Fig. 13.*



TWO FAMOUS "CUTTING" METHODS

1. BOLO KNIFE

An all-purpose knife native to the Philippine Islands although it resembles the South American machete. It's a large single edged knife used for cutting brush, making shelters, huts, for hunting and self-protection.

2. ALEMITE

REG. U.S. PAT. OFF.

Modern Lubrication Methods that CUT PRODUCTION COSTS

Knives are great for their jobs. But it takes "know how" and experience to cut production costs without sacrificing quality.

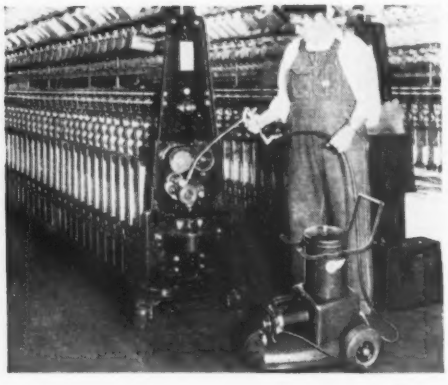
So, listen to this news. In big and little businesses, from food processors, to contractors, to industrial giants —Alemite methods are adding More Productive Time to machines while reducing production costs thousands of dollars a year.

For example—a contractor cut track roller bearing failures by 25% . . . reduced his lubricant requirements by 20% . . . cut maintenance costs all around.

A large foundry, since installing an Alemite System, has ended an epidemic of expensive bearing failures . . . added More Productive Time to the whole plant while reducing production costs.

Just a couple of examples. But in your search for ways to cut your production costs without sacrificing quality, find out what Alemite can do for you. The Alemite Lubrication Representative has probably helped to solve problems identical or similar to yours. For an interesting conference at your desk, without obligation, write Alemite, 1888 Diversey Parkway, Chicago 14 Illinois.

STEWART WARNER



Using an Alemite portable electrically operated high pressure power gun, this textile mill boosted production, reduced spoilage, cut production costs. This is just one of many ways Alemite helps to improve industrial efficiency while effecting operating economies.

TEXTILE Equipment NEWS

Ball-Bearing Top Rolls Reduce Costs

Better draft control, fewer ends down, no lubrication, and decreased labor costs are reported to be the advantages of the Climax ball-bearing top rolls for cotton roving and spinning frames, woolen and worsted ring-frames, and worsted mules. The Climax roll is made by Machinecraft, Inc., 21 Vernon St., Whitman, Mass., and results of the roll's performance in over 115 cotton, woolen, and worsted mills have been announced by Watson & Desmond, southern agents at Charlotte, N. C.

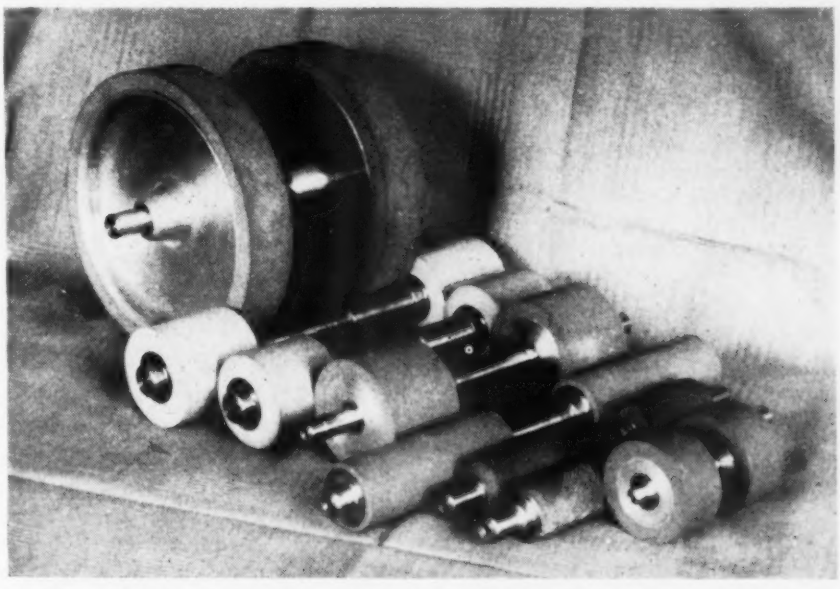
Cost analysis was said to show that at least 30% of the total time consumed in operating roving and spinning frames could be attributed to the cleaning of top rolls of the conventional type, in addition to the tasks of oiling the front rolls approximately three times each 40 hr. on medium and fine counts and oftener on coarse counts.

To eliminate these elements of cost and to give the mill the advantage of using a shell-type roll without the traditional disadvantages of recurrent disassembly and oiling, the Climax roll has been constructed differently from previous designs of ball-bearing top rolls.

This top roll is built around a central arbor of tough steel which resists distortion and bending from any stress or strain met in normal use. The central arbor is fitted with four ball-bearing units, two for each shell. The balls run in hardened races which are large enough to operate with a considerable factor of safety against fatigue and wear. The bearings are located at the extreme outer edge of the cot-bearing shell in order to eliminate the tendency of the roll to weave or shift out of alignment. It was stated that such shifts of the roll caused variations in roll pressure and uneven weighting effects on the roving as it traversed across the surface of the cot. Constant pressure of roll upon roving strand was said to be the result of the installation of Climax ball-bearing rolls, since the pressure is always within the bearings and there is no cantilever effect to produce variations in roll pressure and uneven drafting. The hollow space within the shell is packed with a high-grade fiber grease and sealed.

Once the roll is installed, there is no lubrication problem for many years; and when it becomes necessary to buff the rolls, the completely assembled rolls are buffed in a special set of mandrels which fit into the headstock and tailstock of the buffing lathe. The cots are ground as a unit so that the outside diameter of each pair of cots is the same, eliminating the possibility of unmatched cots which might occur should all the shells be removed individually for buffing.

Further labor savings are obtained with the Climax ball-bearing top roll as the result of stationary journal tips which eliminate the greater part of the cleaning done on conventional rolls. Only the shells of the Climax assembly turn, reducing the necessity for cleaning as well as reducing wear on cap-bar nebs, saddles, and the tip of the roll journal itself.



The Climax ball-bearing top roll can be applied to cotton, woolen, and worsted ring-frames; cotton-roving frames; and worsted mules to effect labor savings in cleaning, better drafting, and improved maintenance. The above rolls are equipped with the Climax ball-bearing. From left to right: Bradford worsted spinning, Model-E Whitin wool spinning, Model-A Whitin wool spinning, French worsted spinning, cotton slubber, cotton spinning middle knurled-roll for Casablancas, long draft, and French mule. (Machinecraft, Inc.)

Nylon Bolsters Effect Savings

Use of new nylon bolster has reduced costs and improved efficiency. (Nylon Bearings)

Installations in cotton mills of nylon bolsters manufactured by Nylon Bearings, Inc., of Whitman, Mass., have reduced spindle maintenance, increased the oiling efficiency of the spindle assembly, and cut power costs by 11% at 9,000 rpm. of the spindle and by 15% at 10,000 rpm. of the spindle, according to the announcement of the new device by Watson and Desmond, southern agents at Charlotte, N. C.

Of conventional design, the nylon bolster can be applied to Whitin, Saco-Lowell, and H&B spindles. It is formed by injection molding; and because of nylon's frictionless qualities, an improved cushioning effect at

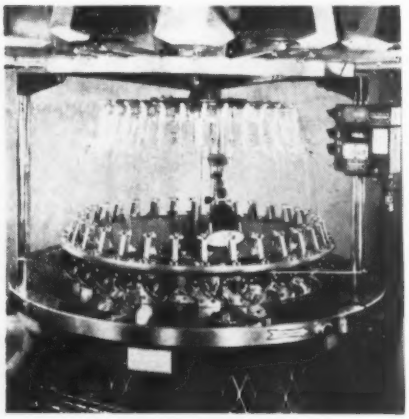
the point of the spindle is obtained, it is claimed.

After a three-year test on cotton-mill spindles, nylon bolsters were said to have shown, under microscopic examination, practically no sign of wear. In addition to the savings in bolster replacements, the installation of the new product was said to have resulted in less contamination of oil and absence of sludge or worn particles in the oil at the base of the spindle, thus improving the spindle's operation and reducing its maintenance. Because of the over-all improvement effected, spindle plumbing was said to have become less critical.

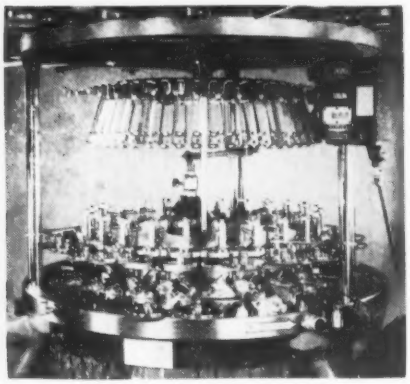
Three Machines Introduced by Supreme

Three new knitting machines, Models ROF, ML, and IC have been introduced by Supreme Knitting Machine Co., 105 Johnson Ave., Brooklyn 6, N. Y.

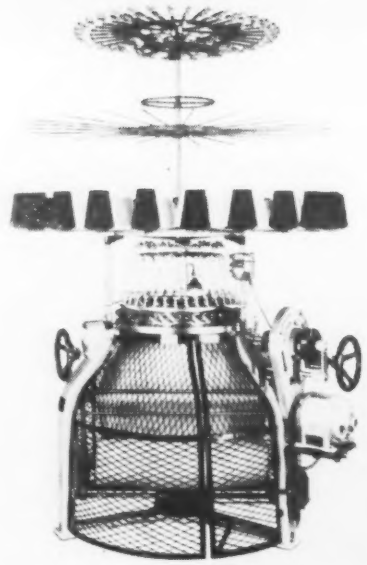
The model ROF is a "floatless" pattern-wheel machine which is equipped with three level unitary pattern wheels to produce oversize pattern fields with no loose floats. It is claimed that the machine has the ability to knit the following combination of stitches with the same set of needles and pattern wheels: knit and welt, knit and tuck, welt and tuck, or any or all feeds without resorting to hand selection or changing of cams.



1. Model ROF pattern-wheel machine is claimed to produce 30 yd. per hr. (Supreme)



2. A production of 35 yd. per hr. is claimed from the Model ML pile-fabric machine, the knitting elements of which are shown here. (Supreme)



3. Model IC coating machine has a 26-in. diameter and 36 feeds. Production of 20 yd. per hr. is reported (Supreme)

The model ML is a multiple-feed, loop pattern-wheel machine especially adaptable for rayon pile fabrics. The fabric usually produced consists of a rayon back and rayon loop, or a cotton back and rayon loop which is knitted and afterwards sheared and napped. The pattern wheels are mounted in a ring adjacent to the sinkers, and designs are obtained by pushing the sinkers forward to obtain a loop. Where the sinker is idle, a plain jersey stitch appears. The standard sizes used are 18 in., 24 feeds; 20 in., 24 feeds; and 24 in., 32 feeds.

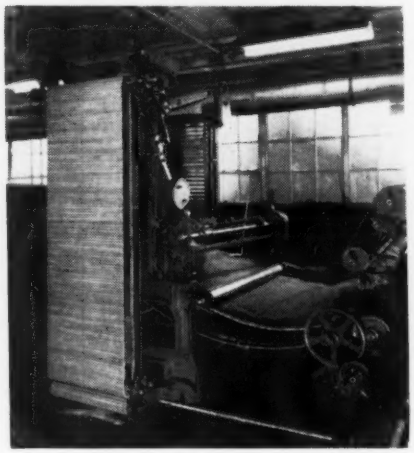
The IC model is especially adapted to production of heavy and lightweight fleeces and other coating materials. Fabrics up to 32 oz. can be produced, in all wool or wool face and cotton backing.

Intermediate Feeder Improves Blending

A new intermediate feed for woolen cards has been developed by Proctor & Schwartz, Inc., Philadelphia 20, Pa.

The new feeder removes the web from the breaker-card doffer in three sections. These sections each pass over turning plates which turn them 90° and lay them on top of each other on a moving apron. The triple-thickness web is then carried upward to a swinging lapper which lays it across the width of the moving apron feeding to the intermediate or finisher card. The result, it is reported, is a better blending of fibers than previously achieved.

One of the principal advantages claimed for this type of feeder is that the carded wool from the breaker card is not rolled-up, squeezed together, or folded over in any way which might affect the evenness of the delivery. This makes a lap which is built up for feeding to the subsequent card entirely made up of soft open fiber of almost absolute evenness at any point.

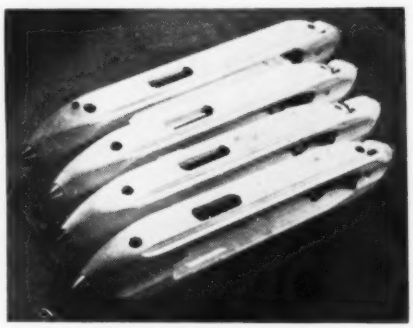


A triple-laminated web of wool is laid across the feed apron to the next card by a new intermediate feeder. (Proctor & Schwartz)

Low-Groove Shuttle Prevents Jerked-In Filling

A new, low-groove shuttle which prevents jerked-in filling and soiled filling has been patented by G. R. Hall and W. E. Burcham, Elkin, N. C., and is available through Watson-Williams Mfg. Co., Millbury, Mass., or Southern Shuttles Div., Steel Heddle Mfg. Co., Greenville, S. C.

The new shuttle has the filling groove on the lower portion of the shuttle face. The eye used has been made with sufficient slant to guide the



The groove on the lower side of this shuttle prevents defects caused by binding of filling between shuttle face and box binder.

Exclusive SONOCO *Development*

DYTEX Tubes for package Dyeing

The SONOCO "Dytex" Tube is priced for one-time use—and yet it is a rigid laminated fibre tube, impregnated and treated for extreme strength and toughness and is, of course, resistant to dyeing and bleaching formulas.

An original product of the SONOCO laboratories, to which has been added years of practical experience in the development of improvements and refinements.

The "Dytex" Tube saves a whole rewinding operation.

Only Sonoco Makes the **DYTEX** *Tube*

sonoco — SERVES THE WORLD — PAPER CARRIERS

SONOCO PRODUCTS COMPANY

BRANTFORD ONT. | HARTSVILLE S. C. | MYSTIC CONN.

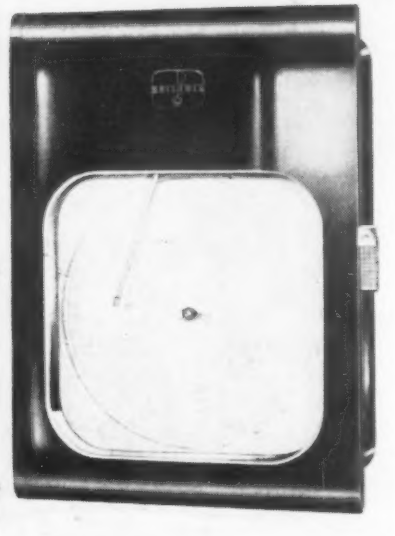
DEPENDABLE SOURCE OF SUPPLY

thread down to the groove and prevent binding between the shuttle face and box binder.

It is claimed that the low groove eliminates jerked-in filling caused when the end from the outgoing bobbin, having been cut by the magazine cutter, falls between the shuttle and binder and is carried into the cloth by the next pick.

Smudged filling caused by yarn falling between the face of the shuttle and the binder is also eliminated, as are both soiling and jerk-ins caused by bulging of the binder leather into the center groove on conventional shuttles.

Recording Gages Feature Versatility



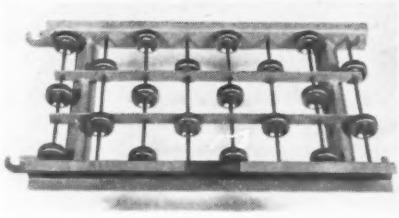
Improvements in the construction of a new line of gages and thermometers permit interchangeability in application. (Bristol)

A new line of recording thermometers and gages, known as the Series 500, has been announced by Bristol Co., Waterbury 91, Conn.

The new instruments operate on the same principles as those previously built by the company but incorporate many improvements that increase their versatility.

The instruments are housed in a case so designed that it can be mounted either on a wall or flush on a panel, and the location can be interchanged easily at any time. A mounting block holding the external connections to the instrument can be mounted either on the bottom or back of the case and can be changed by the user at any time. Other features include an inlaid sponge-rubber door gasket, flush roll-type door handle, non-projecting door hinges, and stainless-steel pen pivots.

Gravity Wheel Conveyor



A new line of standard-size gravity-wheel conveyors, designed to handle nearly every standard size of rigid containers and other materials, has been developed by Sage Equipment Co., 30 Essex St., Buffalo 13, N. Y. The conveyor is supplied in 5 or 10 ft. sections which can be easily hooked together by one man. Ball-bearing zinc-plated wheels are used, and widths of 12, 14, and 18 in. can be furnished.

Electronic pH Meter Is Rugged and Accurate

The Photovolt, a new electronic pH meter, combines the high accuracy of a laboratory-type instrument with the ruggedness and simplicity of an industrial model for universal use. The meter is manufactured by Photovolt Corp., 95 Madison Ave., N. Y. 16, N. Y.

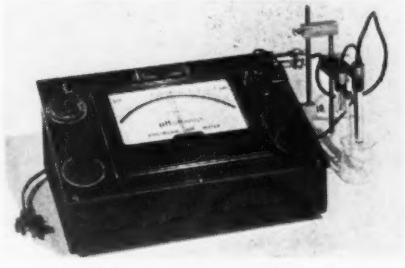
The instrument requires no batteries, and operates directly on any ac. power line of 50- to 60-cycle frequency. A selector enables use on any voltage between 95 and 275 v.

A 7-in. scale which covers the complete pH range facilitates readings, and a temperature control covering a range of 0 to 100° C. obviates the necessity of consulting temperature correction charts.

The instrument is standardized with the aid of a single buffer solution and a single control knob, and a tell-tale hand is used to mark the reference point. This makes it possible to restandardize the instrument in the course of actual measurement without the use of a buffer.

The standard glass electrode is fully shielded and can be used either attached to the meter or installed some distance away.

The dial, in addition to the pH scale, has with a millivolt scale from minus 400 to plus 400 millivolts. The instrument can be used for continuous indication in titration work, no switching being required near the zero point.



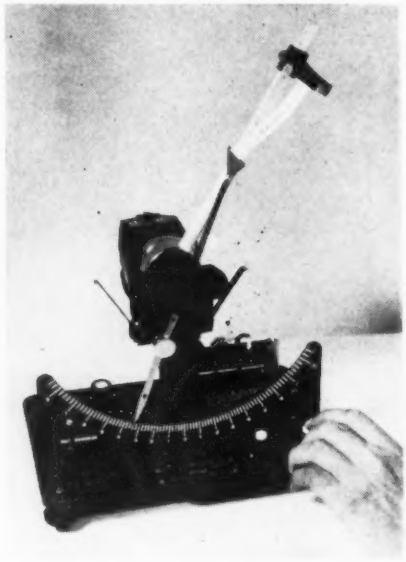
Line-operated meter is used for pH, titration, and oxidation-reduction potentials. (Photovolt)

Nozzle Gives Stream or Spray

A fire-fighting spray nozzle especially designed for textile mills and which can discharge either a solid stream or a fine flat spray has been introduced by Automatic Sprinkler Corp. of America, Youngstown 1, Ohio. The nozzle is made of brass and is suitable for operation at pressures of from 15 to 1,500 psi.

Stiffness Tester Is Motor-Driven

A new motor-driven stiffness tester for rapid, consistent, and accurate tests on textile materials has been developed by W. & L. E. Gurley, Troy, N. Y. The tester measures the stiff-



Stiffness tester gives rapid, accurate readings for all types of fabrics. (Gurley)

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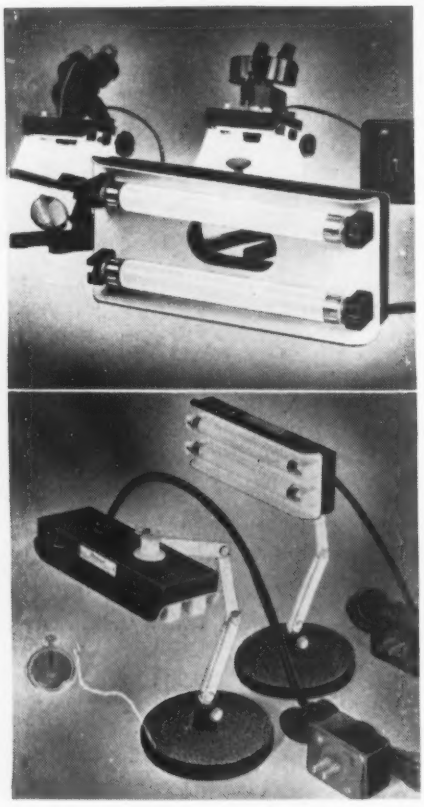
ness, or absence of it, of practically any fabric, including coated materials.

The balance pointer is mounted in jewel bearings and moves parallel to a sine scale mounted in the base. Depending on the material to be tested, weights of 5, 25, 50, or 200 g. are placed on the pointer arm 1, 2, or 4 in. from its point. The arm carrying the sample is moved by a small geared synchronous motor controlled by a reversing switch in the base.

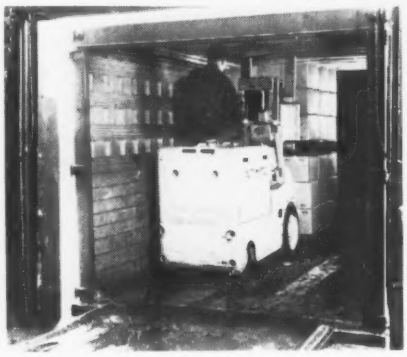
To make a test, a sample is cut to one of several standard sizes, placed in a movable clamp so that the free end overlaps the top of the pointer by ¼ in., and is pressed against the top of the pointer until it is bent sufficiently to assume a short arc, shortening the sample by the ¼ in. overlap. The pointer is then automatically released and the reading of the pointer taken. The greatest reading in both directions is averaged to eliminate effect of curl. Readings are then multiplied by a constant applying to one of 144 combinations of sample and loading weight, and the product is expressed as the stiffness of the sample.

Miniature Fluorescent Lamps Are Available



A miniature fluorescent lamp and reflector, which may be mounted on a microscope or a portable adjustable base for general utility, has been introduced by Stocker & Yale, 48 Birch St., Marblehead, Mass. Both lamps have two 4-watt fluorescent bulbs which operate at 120° F. The microscope lamp produces 450 foot-candles illumination at a 3-in. working distance, and has a color temperature of 3500° K. suited for micro- or macro-photography. The utility lamp produces 550 ft.-candles at a 3-in. working distance. Weight of the lamp and reflector unit is 8 oz., and length is 6¼ in. Vibration is prevented by mounting the ballast at the plug-end of the cord.

Fork Truck Operates in Truck, Trailer Bodies



New fork lift truck can stack to ceilings as low as 68 in., and raises 52 in. without telescoping. (Automatic)

A fork truck capable of operating inside trucks and trailers has been announced by Automatic Transportation Co., 149 W. 87th St., Chicago, Ill. The fork truck has a total lift of 100 in., and can stack to ceilings as low as 68 in. It is available in 1-, 1½-, and 2-ton capacities. Separate hydraulic rams enable a lift to 52 in. before telescopic action begins to extend the mast.

Another feature of the truck is the Newmatic electric controller which operates similarly to an automobile gearshift. Tire slippage is eliminated, and smooth acceleration is assured.

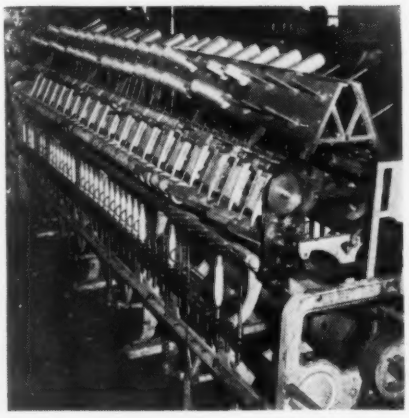
Magnetic Pulley Separates Tramp Iron

Development of a permanent, non-electric, magnetic pulley for removal of tramp iron from textile materials carried on a conveyor belt has been announced by Eriez Mfg. Co., Erie, Pa.

The magnetized pulley may be installed as a pulley at the end of conveyor belts feeding to processing equipment, or over conveyor belts or aprons which feed machines. The unit will

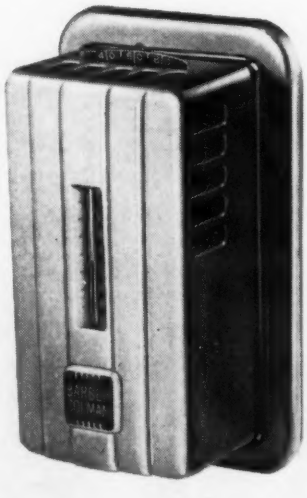
Permanent magnetic pulleys may be used at the end of or over conveyor belts. (Eriez)

Direct Spinning Frame



The Medley direct-spinning frame pictured above (described in TEXTILE WORLD, Aug., 1947, p. 154) spins continuous-filament rayon tow into yarn of 2s to 40s cotton counts. The machine combines the operations of fiber-breaking, drafting, and spinning. It is in development at Medley Mfg. Co., Columbus, Ga.

Thermostat for Unit Heaters



A unit-heater thermostat of unusual sensitivity has been announced by Barber-Colman Co., Rockford, Ill. Application can be made for either heating or cooling, and adjustable stops are available so that lock settings can be obtained and the operating range limited. Contact rating is 10 amp. at 115 v., 5 amp. at 230 v., non-inductive load.

Flotex FOR FAST BLACK PRINTING

for dramatic contrast

Photo Courtesy of
COTTON-TEXTILE INSTITUTE

FLOTEX yields prints that are blacker and sharper in detail than those obtained with natural gum thickeners. It produces a high viscosity with low solids . . . deposits only a thin film on the cloth . . . washes out completely . . . and leaves the printed portion of even the sheerest of fabrics soft and pliable.

FLOTEX is a colorless, clear-cooking thickener that serves as a replacement for relatively more expensive Tragacanth, Locust Bean and other natural and synthetic gums for either roller machine or screen color printing.

FLOTEX— because of its long-flowing, non-jelling properties — is especially suitable for use with Aniline, Diphenyl and Logwood Blacks. Its ability to remain stable in the presence of acids and alkalies makes it especially suitable for printing Rapidogen or Pharmasol, Indigosol or Algosol and Napthol colors — on all types of fabrics.

National also produces: **CLEARFLO** for sheer, lustrous finishes; **AMBERTEX** a heavy-bodied thickener for white discharge and vat color printing; **VAT THICKENER 36** for vat colors on cotton and rayon; **TABLE ADHESIVE** for screen printing; **FLOCK ADHESIVE 970** for chenille flock printing.

Offices: 270 Madison Avenue, New York 16; Boston, Philadelphia, Atlanta, New Orleans, Indianapolis, Chicago, San Francisco and other principal cities. In Canada: Meredith, Simmons & Co., Ltd., Toronto and Montreal. In Holland: Nationale Zetmeelindustrie, N. V., Veendam.

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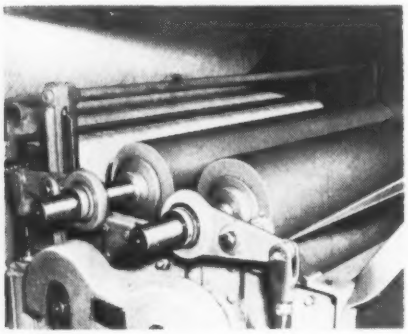
work effectively through belts of any non-magnetic material and are unaffected by atmospheric conditions. Non-electric, the pulley may be used where possible sparking is undesirable.

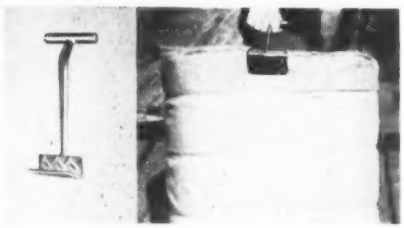
Synthetic Rubber Used For Squeeze-Roll Cover

A synthetic-rubber covering for use on slasher squeeze rolls has been developed by Armstrong Cork Co., Lancaster, Pa. Known as Accotex Slasher Squeeze-Roll Cover, the product is designed to replace the expensive wool blankets normally used by mills. Other than drying when size boxes are cleaned, the cover requires no attention for long periods of time. It is claimed that uniform density is maintained throughout constant use; and since the cover is seamless, warps are not streaked. The cover is applied to the mill's rolls, cured, and sized to proper outside diameter at the Armstrong plant in S. Braintree, Mass., then returned to the mill ready for use.



A synthetic-rubber squeeze-roll cover has long life and maintains uniform density. (Armstrong)

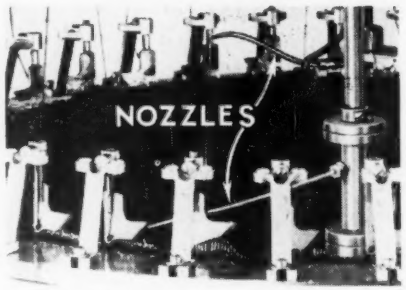
Hook Prevents Damage, Accidents

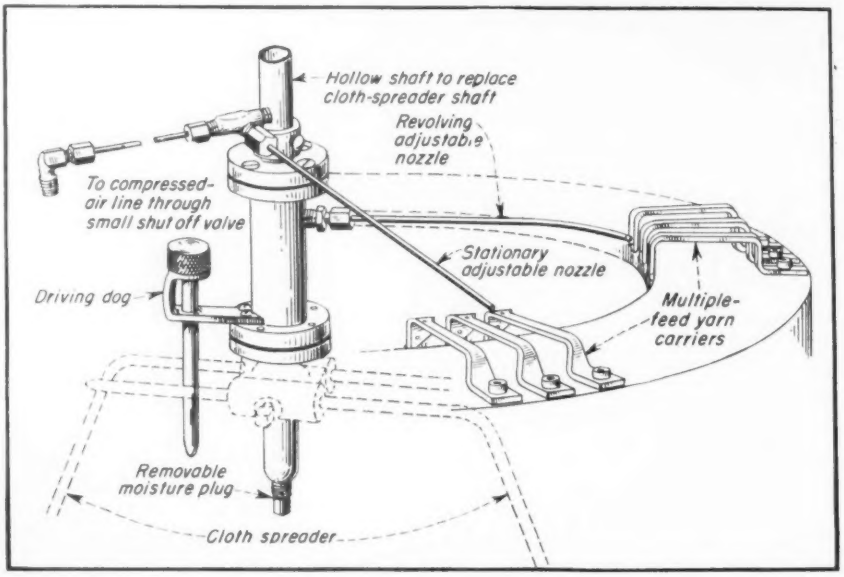


A hook especially designed for handling cartons, bales, or cases on hand trucks without damage to the container has been announced by Safe-Way Hook Co., Box 900, Greenville, S. C. A long handle enables the user to reach across the top of the container, eliminating hand injury from steel bands or wire. There are no sharp or pointed ends to tear the container or injure its contents.

Air Jet Removes Lint From Needles

Continuous cleaning of lint from knitting needles is accomplished by a new air blower developed by Supreme Knitting Machine Co., Brooklyn, N. Y. The unit can be mounted on the head of any Supreme machine, or adapted to fit any other make of machine. It has two air nozzles, one revolving and the other stationary. The air jets will not entangle yarn, and lint is blown away from the fabric.

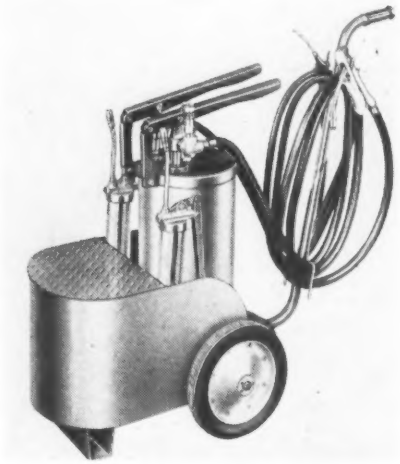




Portable Cart Carries Lubricants

The Graco Lube Service Cart, a complete lubrication unit on wheels, has been announced by Industrial Div., Gray Co., Minneapolis, Minn.

Using no air or electric connections, the Graco Cart carries a generous supply of three different lubricants, eliminating frequent trips to oil storage.



Two greases and an oil are carried on wheels in this lubricating-service cart. (Gray)

The unit is mounted on semi-pneumatic tires and can be operated by one man. Two 1-lb. lever guns and a ½-pt. pistol oiler are included. The pressure pump has a built-in gun loader for the hand guns. Lubricant and oil compartments are easily filled without removing pumps.

The front section of the red-enameled cart is a tool box with a hinged cover and can serve as a platform step to enable the operator to reach high bearings.

Electronic Controller Regulates Tensions

The Motron, a sensitive electronic mechanism for controlling tension, guiding, and winding of yarn or cloth has been announced by W. C. Robinette Co., 802 Fair Oaks Ave., So. Pasadena, Cal.

Several miniature vacuum tubes directly control the speed and direction of a standard 1/15 hp. motor (according to the setting of the input dial), which can be used to control other larger power sources. The input dial is mounted on precision-instrument ball bearings and may be rotated by an extremely small force, as nylon or silk

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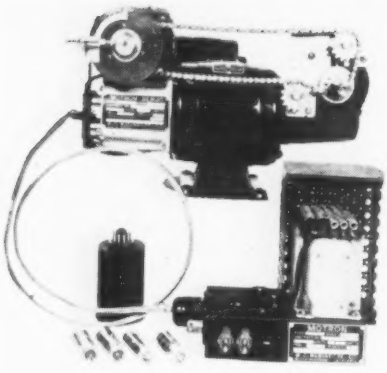
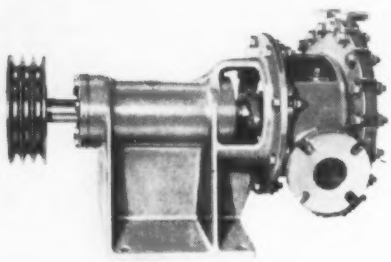


The Motron is a packaged, continuous-balance central system of practically infinite sensitivy. (Robinette)

filaments. The input dial controls the velocity or position of the motor to very accurate limits, and velocity in either direction may be limited from zero to maximum independent of the input dial setting. The motor may actuate any device which controls the process, state, or condition that is measured on the input dial, thus controlling and regulating the process.

Pump Handles Abrasive Liquids



A new line of centrifugal-process pumps designed for handling corrosive and abrasive liquids where severe wear is encountered has been introduced by Allis-Chalmers Mfg. Co., Milwaukee, Wis. These pumps are equipped with a large shaft and heavier bearings, and parts subjcted to severe wear are separate and replaceable.

Area Meter Gages Liquid Flow

A new electronically operated area meter, said to measure accurately flow of liquids, has been developed by Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland 10, Ohio.

The instrument consists of a telemetering transmitter installed in a pipe line and connected to an electronic receiver. Any variation in flow is transmitted to a receiver which may be an indicator, recorder, or controller.

Volumetric ratios of different fluids can be measured without making density calculations. Liquids of temperatures up to 200° F. may be measured by standard transmitters. The receiver may be calibrated in terms of gallons, pounds, or feet per min.

Gradual Opening Done By Wool RAG PICKER

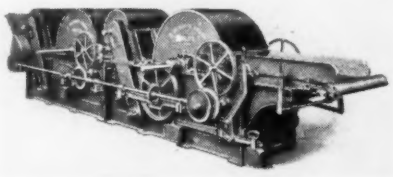
By GUSTAV ZELLNIK, *Consulting Editor, TEXTILE WORLD*

***HIGHLIGHTS:**—Picker supplied with varying number of cylinders according to requirements—Number of pins increases progressively—More spinnable fiber produced—Dusting and garnetting eliminated.*

A RAG AND SHODDY picker embodying an improved version of an old principle has been developed in Poland by G. Josephy's Erben, Silesia.

Rag and shoddy pickers normally used in the United States have only one cylinder with 9,000 to 12,000 teeth or picker pins. Stock is run through the same machine as many times as required for proper opening. Sometimes a shredder is used preceding the picker.

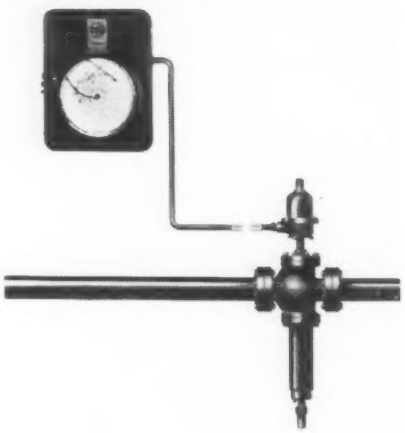
In the Polish machine, a number of cylinders are arranged in series. The number used varies from two to six depending on the hardness and nature of the material to be opened. These cylinders have a progressively increasing number of picker pins. For instance, the first has 4,000 to 5,000 pins; the second, 6,000 to 7,000; the third, 8,000 to 9,000; and so on. Thus the opening process is more gradual, and there is less strain on the fiber. By preserving the original fiber, a higher spinning quality is achieved than by the abrupt opening. Cylinder speed is 800 rpm.



Multiple cylinder with progressively increasing numbers of pins give gradual opening. (Erben)

The Polish machine also has a strong exhaust system which removes the dust of opening and eliminates the dusting process. It is claimed that the treatment of the fiber is so complete that the garnetting process is also unnecessary.

The machine described is best suited for hard, twisted material; and is not recommended for soft thread or clips.

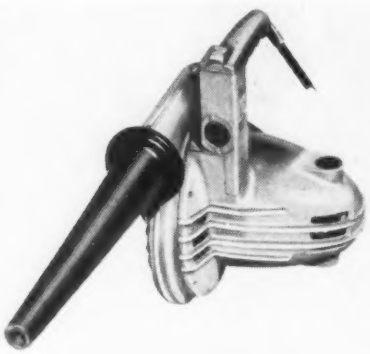


Rate of liquid flow is measured by a transmitter installed in a pipe line and an electronic receiver. (Bailey)

Electric Cleaner Is Multi-Purpose

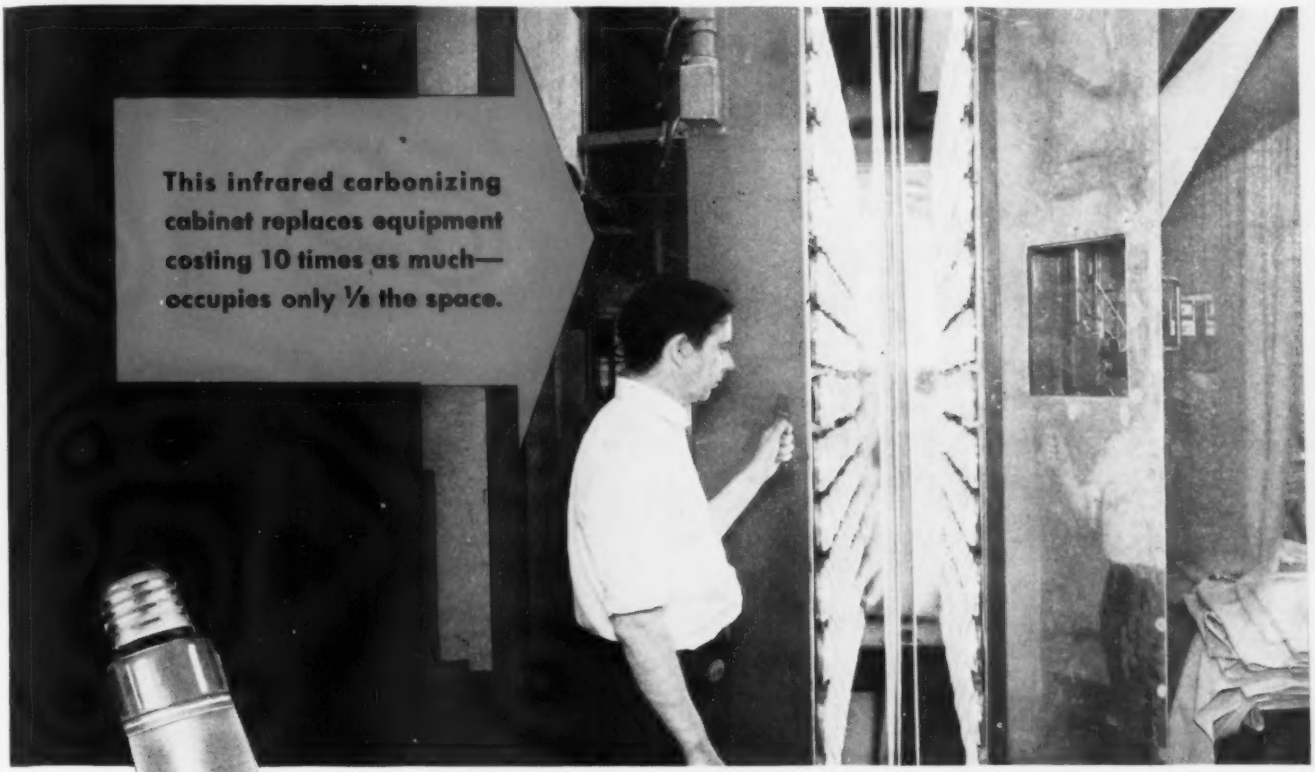
A powerful and versatile cleaner which can vacuum, blow, spray, or dry has been announced by Ideal Industries, 1612 Park Ave., Sycamore, Ill.

The cleaner is available in two models. The more powerful, heavy-



Portable electric cleaner may be used as vacuum cleaner, blower, sprayer, or dryer. (Ideal)

WESTINGHOUSE INFRARED HEATING CUTS COSTS IN TEXTILE PROCESSING



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Whether your primary interest is in cutting costs or speeding production, it will pay you to get the facts on infrared processing. In addition to wool carbonizing, slasher drying, curing resins, fixing printed fabrics, drying after all sorts of wet processing—many new uses are continually being found for this modern, more efficient, faster heat. To explore the opportunities in your plant for cutting costs and speeding production with Westinghouse industrial infrared lamps, write for further information to Westinghouse Electric Corporation, Lamp Division, Bloomfield, N. J.

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duty model has a 1½-hp. motor, blows air at a velocity of 25,500 ft. per min., and weighs 14½ lb. The medium-duty cleaner has a ¾-hp. motor, displaces air at 19,000 ft. per min., and weighs 9½ lb. Both models have ball bearings and are self-cooling.

The cleaner can be used as a vacuum cleaner, drawing dirt into a bag, or as a blower. It may also be used as a sprayer for paint, varnish, insecticides, etc., and, with a heater-nozzle attachment which raises the temperature of the air to about 85° F, as a dryer.

The cleaner housing is aluminum, the motor is controlled by a thumb switch on the handle, the entire mechanism is balanced for ease of handling, and a 20 ft. cord is supplied.

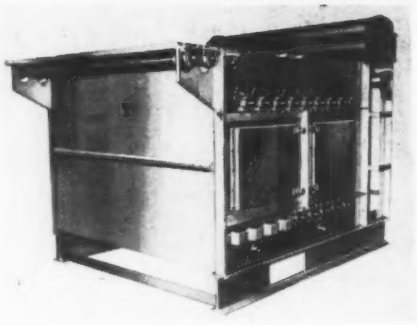
Hand Meter Checks Linear Speed

Hand linear-speed meters are electric-type and have no flexible shafts. Direct readings are possible in either feet or yards per min. (Metron)

Linear-speed meters, type 25D, for measuring speed of travel in yards or feet per minute are now available from Metron Instrument Co., 432 Lincoln St., Denver 9, Colo. Linear speeds may be measured to within 1% accuracy, it is claimed; and a wide selection of instruments is available covering single ranges from 3 to 3,000 yd. per min. or 10 to 10,000 ft. per min. All meters are direct reading. Contact to the moving member is made by a replaceable synthetic rubber disk 1 ft. in circumference solidly clamped on the rotating shaft of the head.

Steam Ager Has Stainless-Steel Parts

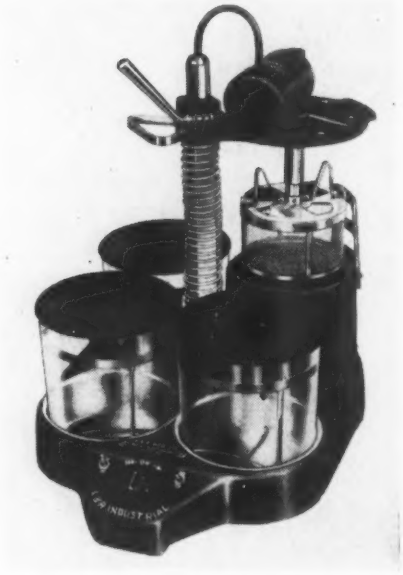
A steam ager has been introduced by Cook-P & N Machine Co., 375 Dorchester Ave., Boston 27, Mass. The rolls, heads, and all other parts which are exposed to steam are stainless steel. All shafts rotate in self-aligning ball bearings mounted outside



A new steam ager is available in several sizes without sacrifice of 20-yd. box capacity. (Cook—P&N)

the box and protected from processing steam. The speed of the top rolls is adjustable to the speed of the rubber-covered squeeze rolls on the delivery end. Other features include an adjustable mouthpiece at the entering end, stainless-steel perforated steam piping with splash guards in the bottom of the tank, and large hinged doors on both sides.

Small-Parts Cleaning Machine Improved

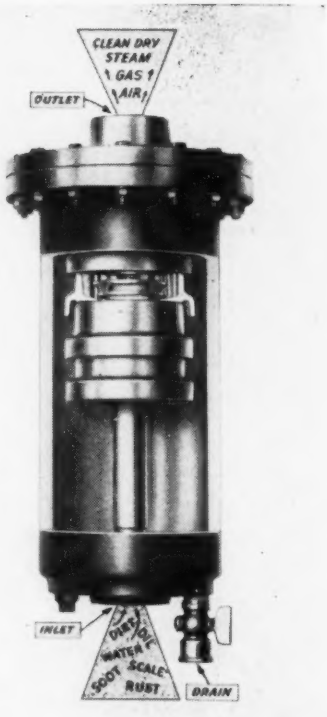


An improved version of its small-parts cleaning machine has been introduced by L & R Mfg. Co., 577 Elm St., Arlington, N. J. The unit is now equipped with a specially-designed motor made by L & R, and three nesting baskets are available which fit into the large work basket which is 3⅜ in. deep and 5½ in. in diameter. The unit is furnished with a reversing mechanism. The self-contained unit cleans, rinses, polishes, and dries parts which are too delicate for manual handling.

TEXTILE EQUIPMENT NEWS

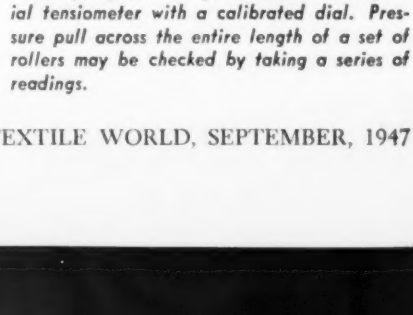
(Continued on page 284)

Air Separator Operates Mechanically

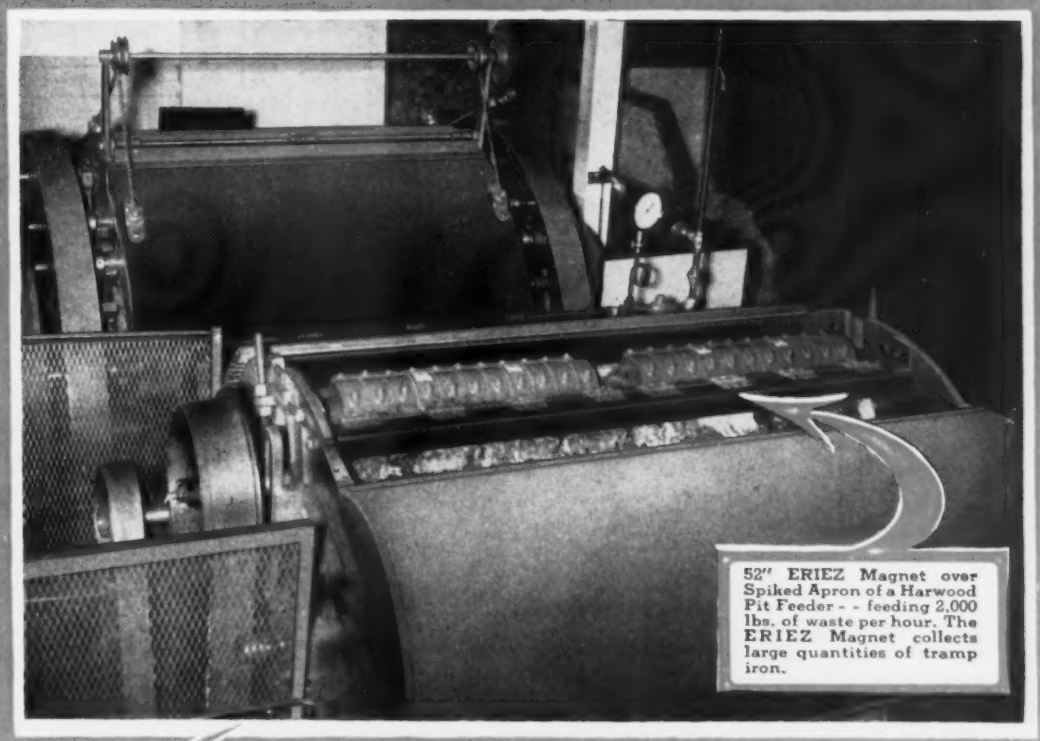


An air separator, the Model E, for delivering cleaned dry steam, gas, and air has been developed by Chicago Mfg. & Distributing Co., 1928 W. 46th St., Chicago 9, Ill. Strictly mechanical in operation, the separator has no moving parts, screens, or filters. No attention is required other than draining off condensation that accumulates in the chamber. Non-corrosive metals are used throughout. The Model E has a maximum rated capacity of 250 cu. ft. per min.; and is 8 in. in diameter, 15 in. high, and has a standard 1½-in. pipe connection.

Indicator Measures Roller-Pressure Pull



Roller-pressure pull may be measured by use of the Joyro pressure-pull indicator now available from George Rosales Co., Los Angeles, Cal. The indicator consists of a flat, watch-spring steel strip connected to a special tensiometer with a calibrated dial. Pressure pull across the entire length of a set of rollers may be checked by taking a series of readings.



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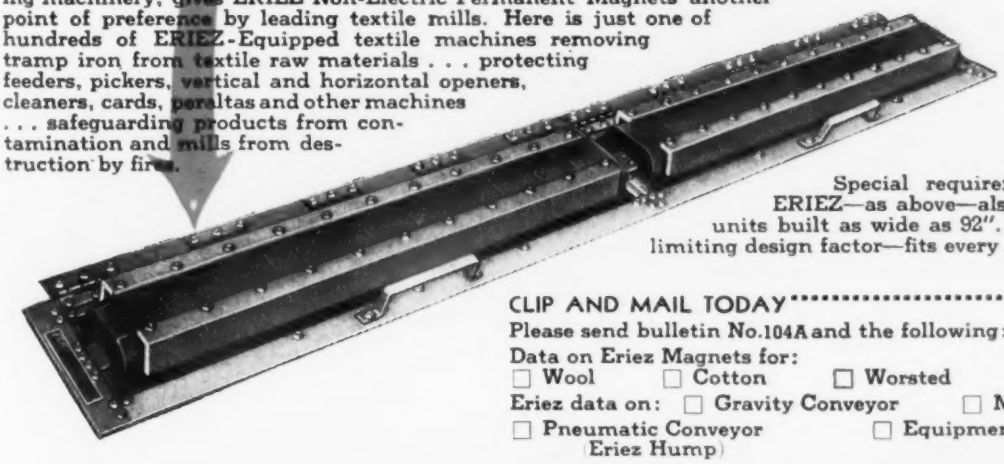

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Kinks AND SHORT-CUTS

Spooler-Knotter Bumper Eliminates Manual Timing

★*Prize Winner for September*
(July contest)

On a Barber-Colman automatic spooler, the timing device at the end of the spooler starts its cycle as the traveling knotter leaves it. The knotter travels around the spooler and comes back to the timer. The timer stops the knotter and holds it until its own cycle is completed; the knotter is then released to make another trip around the spooler. Thus, the knotter is given its proper timing.

However, if the knotter stops anywhere in its circuit before it comes back to the timer, there is no way to compensate for the loss of time; and the whole timing cycle is thrown out of adjustment. Such a condition necessitates a manual retiming of the traveling cycle of the knotter.

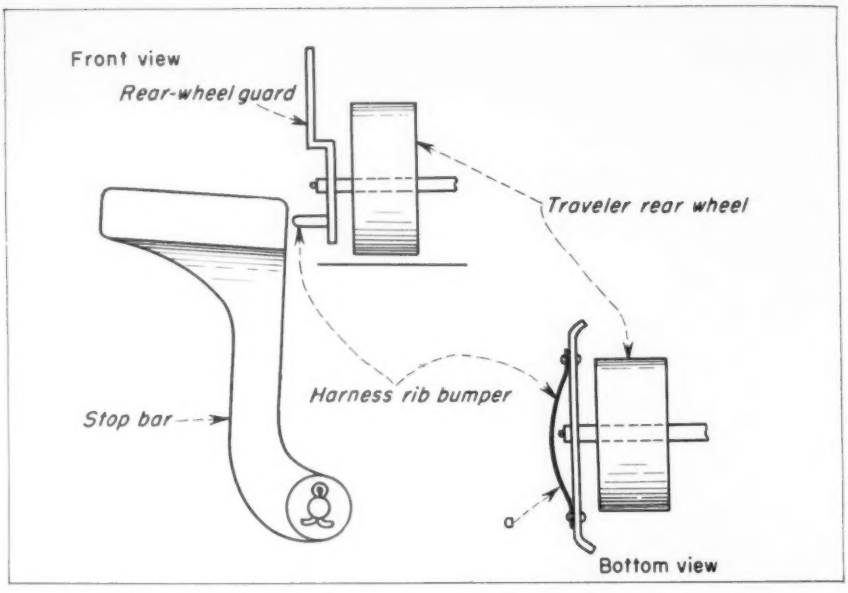
This necessity for retiming the knotter can be eliminated by installing a bumper made of a harness rib on the bottom of the traveling-knotter rear-wheel guard (catalog number KKE 713). This bumper, shown in the accompanying sketch, gives the same effect as the slot system that has become popular with spooler fixers during the last few years, but is more simple to make and does not require any delicate adjustments to the knotter.

To make such a bumper, secure a piece of harness rib 14 in. long. This rib is of steel, about ¼ in. wide and $\frac{1}{16}$ in. thick. Bolt the ends of this rib to the bottom of the rear-wheel guard so that the middle section of the rib extends outward in a concave manner, as shown at a in the sketch. The rib is thus in a shape and position to act as a bumper. The bumper should be located on the bottom of the rear-wheel guard so that it is about ⅝ or ¾ in. from the center of the guard.

If the traveler clutch is working properly, no adjustment need be made to the part. It may be necessary to tighten the lock-dog spring (KKO 88) and the ratchet-wheel spring (KKO 93) in the timer box so that the two trip-lever blocks (KKO 101) will pull completely apart when the timer finishes its cycle.

A brief description of the action of the bumper is as follows: The timer dial is set on a much smaller setting in order to achieve the same dwell of the knotter as had been obtained before the bumper was installed. Usually, a setting of ¼ gives the same dwell as the old setting of 4.

(Continued on page 185)



Manual retiming of the cycle of the traveling knotter on a Barber-Colman spooler can be eliminated by the installation of a timer bumper on the rear-wheel guard of the knotter. The bumper, made of a 14-in. length of harness rib, should be located ⅝ or ¾ in. below the center of the rear-wheel guard. The timer, set at about ¼ instead of 4, holds the knotter until the timer cycle is completed. It then releases the knotter and remains in a "neutral" position until it is acted upon by the returning knotter. Thus, the period of time that the knotter remains inactive at the end of the spooler at the termination of its circuit of the spooler is not thrown out of adjustment if the knotter should be stopped during its circuit.

A $25 SAVINGS BOND FOR YOUR IDEA

A $25 SAVINGS BOND will be awarded each month for the most useful "kink" published in this department. This contest is open to all readers of TEXTILE WORLD, and there is no limit to the number of entries any one person may make.

Contributions must be received not later than the last day of the month to be eligible for the award for the second succeeding month. Items may pertain to production methods, mill engineering, safety, cutting costs, improving quality, speeding up production; in brief, any little device, stunt, kink, or short-cut which you have tried out in your own mill and which you believe will be helpful to other mill men. Items should contain sufficient detail to permit other mill men to utilize the ideas in their own operation. Previously published material is not eligible for the award. Judges of contest are the editors of TEXTILE WORLD.

TEXTILE WORLD shall have the right to publish any items submitted. Items which are accepted will be paid for at regular rates for this type of matter with an extra payment for appropriate sketches or photographs. The sketch you submit need not be a finished drawing.

In writing to this department, give your real name and address as evidence of good faith and to permit payment for items accepted. Please advise whether your name may be used with the kink.

Contributions should be addressed to: Technical Editor, TEXTILE WORLD, 330 West 42nd Street, New York 18, N. Y.

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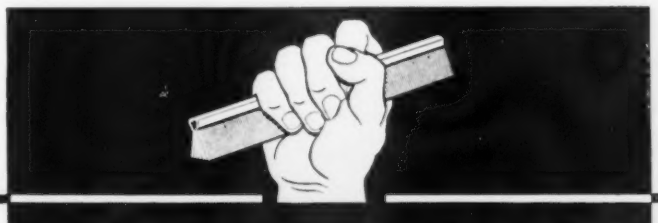
All Fullergript installations of other textile brushes have followed this special-design procedure. You can also enjoy this engineering service without obligation. A Fullergript representative in your locality will call, discuss your cloth-brushing methods, and report to the Fuller Engineering Department. Recommendations are submitted without charge to show how you can reduce brushing expense. Simply write to



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GETTING THE MOST FROM WINDING

Information about winding designed to show improvements in winding equipment and new ideas in the winding operation

DELIVERY POINT OF THREAD GUIDE (No. 50 Winding Machine)

It is a good idea to check occasionally on the relation of the Thread Guide and its delivery point to the winding package. When installing new porcelain guides this always should be done. The operation is very simple, involving only the use of a piece of carbon paper and possibly a pair of pliers.

Place the carbon paper, carbon side out, between empty cone and Thread Guide. Press the guide against the paper and draw the paper straight up.

1. If the Guide is in correct adjustment, there will be a carbon smudge at the bottom of the V-shaped thread slot centrally located across the face of the Guide.

2. If the V of the slot cuts into the smudge, it shows that the V is too low. The Thread Guide Holder should be bent backward with the pliers until the V just touches the paper.

3. If the V does not touch the smudge, the Guide is too high. The Holder should be bent forward slightly.

4. If the carbon smudges at only one side of the slot, the Guide is off center. The Holder should be twisted until the carbon paper will smudge uniformly across the face of the Guide.

Sometimes Guides are mistakenly used with a Traverse Frame Back of different taper, which will cause wear in one or both parts. The fault is evidenced by a polished surface on the edge of the Guide that is in contact with the Back. Guides used with the correct Back will wear very slowly and will show this wear as a polished surface across the entire width of the Guide. If a Guide used with the correct Back shows wear on one edge only, it has become bent and should be given a slight twist toward the high side so that it will conform to the contour of the Back.

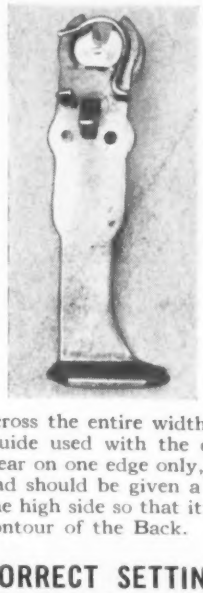

Fig. 2 Shiny surface at left shows extra wear. Guide does not lie flat against Traverse Frame Back.

CORRECT SETTING OF BREAKAGE LEVER (Roto-Coner*)

The purpose of the Breakage Lever is to keep the stopping parts out of operation while winding is taking place and to cause them to work promptly when a break in the yarn occurs or the end runs out. Improper setting may cause slow stopping, unnecessary end breakage, and the necessity of applying extra tension on the yarn.

The Breakage Lever should be located close to the Bail at the back of the Tension Bracket. The clamps that hold the Breakage Lever have long slots so that they can be adjusted back and forth to assist in regulating the action of the Breakage Lever.

They should be far enough back to meet the following requirements. There must be no vibration of the Breakage Lever while winding. The Breakage Lever must act promptly when yarn breaks or runs out, so that the cone will lift promptly and yarn will not wrap around the Rotary Traverse.

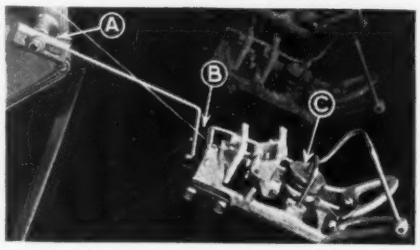

Fig. 3 Bail B is too far from Tension Bracket and Clamps A are improperly adjusted. Extra Tension Weight C is used to hold down the Bail. This causes bad winding.

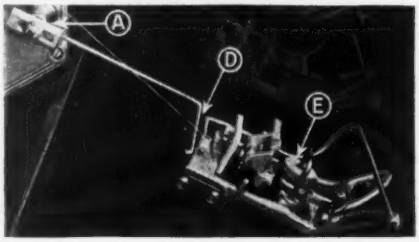

Fig. 4 Bail D is moved close to Tension Bracket and Clamp A set to nearly balance the Bail. No extra tension is needed at E.

When machines are fitted with the early type of Breakage Lever Clamp, which did not have the adjustment feature, it may be necessary to add Breakage Lever Counterweight 50-518-11X to balance the Lever when running fine yarn.

It is bad practice to add tension in order to hold down the Breakage Lever. Extra tension makes hard packages, strains the yarn, and in the case of weak or fine yarn causes unnecessary end breakage. With the Breakage Lever properly located and adjusted, counts of yarn finer than 100/1 can readily be wound. For this type of winding we recommend the use of the regular bottom tension, Tension 90-107F for the top Tension, Felt Washer WA-1004 and either WA-600 or WA-663 Tension Weights.

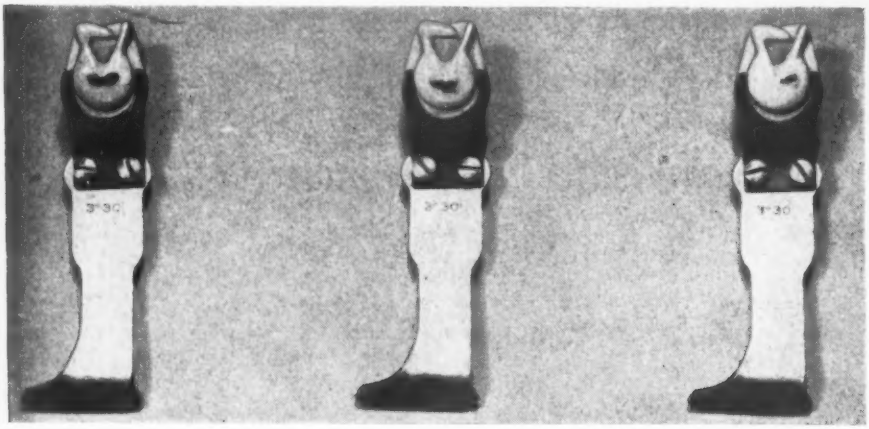

Fig. 1 Left, carbon smudges uniformly at bottom of V, so Guide is correctly set. Center, smudge is below V, so Guide Holder should be bent forward. Right, smudge is on right-hand side, so Holder should be bent counter-clockwise.

See our Catalog in TEXTILE WORLD YEARBOOK

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"THERE'S A UNIVERSAL WINDER FOR EVERY TEXTILE NEED"

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PROVIDENCE BOSTON PHILADELPHIA UTICA CHARLOTTE ATLANTA CHICAGO LOS ANGELES MONTREAL and HAMILTON

KINKS & SHORT-CUTS

(Continued from page 182)

The traveler leaves the timer, and the timer begins its cycle as before. However, since it is set on a much smaller setting, it completes its cycle just a few seconds after the traveler leaves it. It remains in this position until the traveler returns. It makes no difference how much time the traveler loses during its trip around the spooler, the timer remains in the same position until it is acted upon by the returning traveler.

When the traveler comes back to the timer end of the spooler and starts its turn, the bumper on the rear-wheel guard strikes the stop bar (KKO 110) and trips the timer. The traveler completes its turn and starts forward. The timer stops it and holds it in the regular manner. When the timer cycle is completed, the timer releases the traveler and the traveler begins another circuit of the spooler.

No manual retiming is necessary, and a longer dwell of the traveler at the end of the spooler cannot be obtained by flipping the timer handle. (K-717)

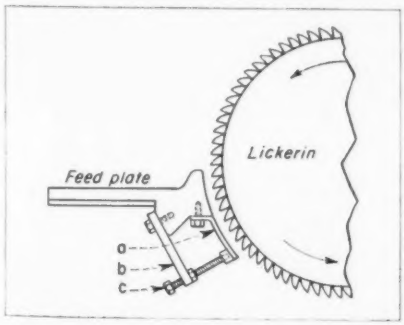
Feed-Plate Extension Improves Lickerin Feed

Better separation and control of rayon fibers at the cotton-card lickerin can be obtained by the use of an adjustable extension on the feed plate, according to German technical reports. Such an extension permits stock to be taken by the lickerin gradually over a feeding area at least twice that provided by the standard plate.

The extension, shown at a in the accompanying sketch, should be made of plate steel, smoothed and polished so that fibers will not hang on it. The upper end should be fashioned so that it exactly fits the under side of the feed plate and the working face extends downward in the same arc as the curve of the feed plate. This extension can be fastened to the under side of the feed plate with a bolt as shown.

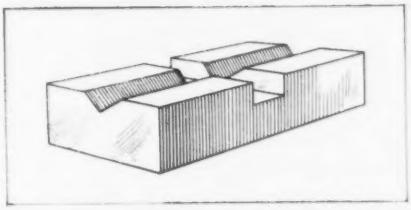
At the back of the lower end of the extension, there should be provided a small block to serve as an adjustment point. This block should be tapped to receive adjusting screw c.

Plate b, which supports adjusting screw c, may also be bolted to the under side of the feed plate. Plate must be held rigidly in place so adjustments of screw c will not affect it but will act upon extension a. (K-733)



A more gradual action of the lickerin upon rayon stock can be obtained by installing an extension on the standard cotton-card feed plate. Extension **a**, *fastened to the feed plate and adjustable by screw* **c** *in supporting plate* **b**, *should be carefully smoothed and polished to prevent the fibers from hanging.*

Holder Aids in Welding Small Knitting Parts



It is often desirable to weld broken parts such as small bolts, special screws, or rods—particularly those used on knitting machines. The difficulty in welding such parts usually lies in properly holding the pieces. We use a slotted block, similar to the one shown in the accompanying sketch, and a C clamp for holding the pieces to be welded.

The block is made of a piece of cast iron or steel. The crosswise square slot is cut deeper than the lengthwise V slot, and the ends that are to be welded are placed together over the square slot, with the other ends of the parts lying in the V slot. The welding is done directly over the square slot.

Such a block aids in quickly heating the parts to be welded, permits the pieces to be gripped firmly, and does not adhere to the welded part. (K-711)

Blending-Feeder Shafts Protected Against Chokes

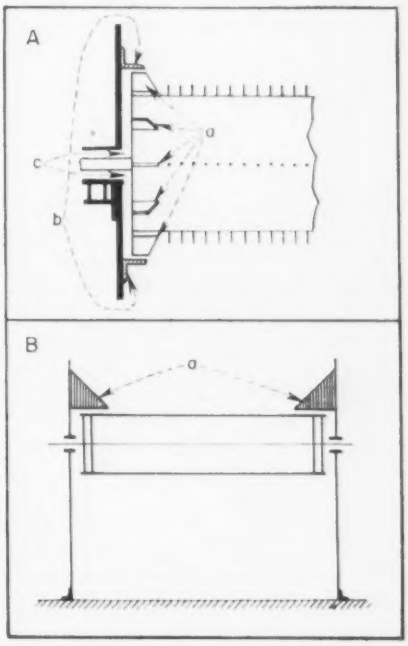
To increase the fiber-opening action of blending feeders, particularly when short-staple rayon stock is being run, it is desirable to increase the speeds of the lattice apron and the stripper roll. With speed increases of these parts and closer setting of the pins in the stripper roll to those in the apron, more careful and complete opening is obtained, thereby decreasing the number and size of mats of fibers that reach the beater later in the opening and picking process, according to German technical reports.

However, closer settings and higher speeds of these working parts also increases the tendency of fibers to accumulate on the shafts or at the bearings that support the stripper roll and apron. To avoid such accumulations, it is necessary to throw the fibers away from the end of the roll nd apron. This job can be done by creating a flow of air into the working area through the housing openings at the shafts and bearings.

Such an intake of air can be accomplished at the ends of the stripper roll as shown in A of the accompanying sketch. Small iron flyers a are attached to the edge of the roll at regular intervals. As the roll revolves, these flyers throw air and fibers toward the center of the roll. An angle-iron rim, b, fastened to the stripping-roll shroud, keeps fibers from settling behind flyers a. A steady flow of air is taken in at points c and emerges between b and the stripper roll.

This arrangement, of course, introduces sufficient air into the feeder to build up too much pressure for adequate control of the fibers. A small slot, covered with screen wire, should be cut in the top of the feeder housing to permit excess air to escape.

Shafts and bearings on the lattice aprons, inclined and horizontal, can be protected from accumulations of fibers by installing wooden, sheet-metal, or cast-iron ledges over the critical points, as shown at a in sketch B. (K-732)



Chokes resulting from accumulations of fibers on the shafts and bearings of blending feeders can be avoided by creating an incoming flow of air at these points. Iron flyers **a**, *spaced regularly around the end of the stripper roll, will cause a suction of air at points* **c**. *Angle-iron ring* **b** *keeps fibers from settling behind* **a**.

In sketch B, ledges **a**, *installed over the shafts and bearings of the inclined and horizontal aprons, prevent stock from falling on the shafts.*

Kinks & Short Cuts—
(Continued Next Page)

KINKS & SHORT-CUTS

(Continued from page 185)

Load Bar on Hoist May Need Shock Absorber

The piece of equipment that is perhaps most widely used in the mechanical handling of materials is the overhead hoist and conveyor rail. In many applications of this device, the horizontal load bar (a in the accompanying sketch A) receives a severe jolt when either of its ends bumps against an obstruction. The effect of such a jolt is transferred to the mechanism of the hoist, and continued rough treatment will damage the equipment.

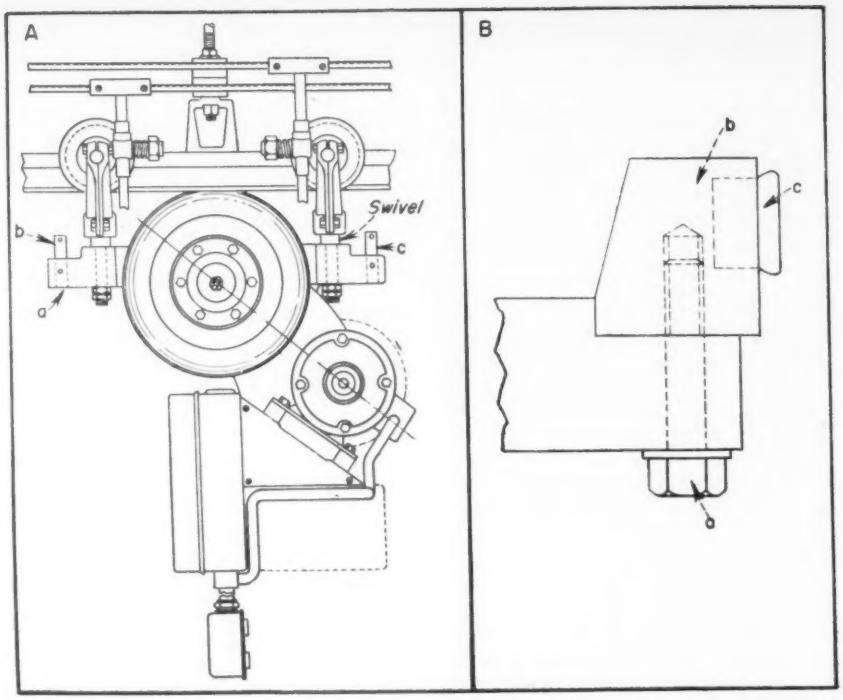
To lessen the damaging effect of such collisions, we installed a rubber bumper at each end of the load bar on our hoist, as shown in the sketch.

The standard load-bar pins, b and c in assembly A, normally are not in use, since the swivels between the pins and the tire are used to couple the load bar to the trolley. These pins are removed and bolts substituted.

Each of these bolts, a in assembly B, secures bumper block b to the load bar. In the outer side of b, rubber bumper c, made of 1½-in.-diameter rubber, is inserted as shown. The rubber bumper should extend well beyond the end of the load bar and bumper block.

Such a bumper installed at each end of the load bar will absorb most of the shock of a collision. *(K-715)*

Myron C. Ziemke, Oak Ridge, Tenn.



*Electric hoist-and-conveyor assemblies that are involved in frequent collisions should be equipped with rubber bumpers on the load bars to absorb some of the shock. Remove pins **a** and **b** in assembly A and substitute bolts, as **a** in assembly B. To bolt **a**, secure bumper block **b**, which supports rubber bumper **c**.*

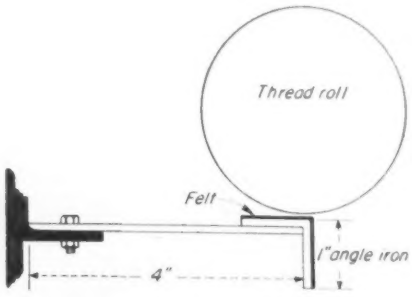
Lap-Preventer Kink Improved by Felt Cover

A little over two years ago, TEXTILE WORLD published a kink in the Kinks and Short-Cuts department *(K-212)* under the title "Angle-Iron Lap Preventer for High-Speed Warpers." We decided to try out this idea, and we equipped two warpers as outlined in the kink. The angle iron really did prevent most of the laps that we had been having, and the few that we still had did not get big enough to cause a serious breakout on the beam.

However, we thought that the lap preventer could be improved upon. We removed the angle irons from the warpers and cemented a felt cover on them, as shown in the accompanying sketch. We put the felt-covered lap preventers back on the warpers, and they have now been running two years without a single lap.

Another advantage to using the felt is that there is less likelihood of damaging the aluminum thread roll. One mill that tried using the bare angle iron next to the thread roll had a great deal of vibration in its warpers, and the angle iron struck the thread roll. Of course, the iron damaged the roll.

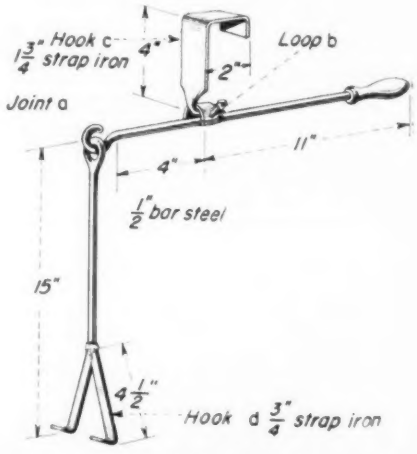
We have had no such trouble with our felt-covered lap preventers. The felt is cemented to the top and front of the angle iron, and the felt on the front was sanded down and painted the same color as the warper. The felt on top, next to the thread roll, was left soft and fluffy. The purpose of covering both the top and front was to eliminate a break in the felt at the point where the angle iron bends. Such a break would have an exposed edge of the felt that the blow-off hands might rip up with compressed air. *(K-719)*



An improvement to the angle-iron lap preventer for a high-speed warper can be made by glueing a felt cover over the top of the angle iron to prevent the aluminum thread roll from striking the iron if there is considerable vibration in the warper. It is best to extend the felt over the front of the angle iron so that the edge of the felt is not exposed to compressed air while the warper is being blown off.

Lever and Lifting Rod Aid in Inspecting Patterns

To inspect fancy patterns in looms, we have found that it is necessary to raise one harness at a time in order to detect quickly any mixed colors, double ends, yarn doublings, misdraws, or misreeds. The old practice in our weave room was for the smash hands



*This lever and lifting rod can be used to advantage by smash hands or loomfixers to aid in inspecting fancy weaving patterns on looms. Hook **c** engages the loom arch and the lever of the lifting tool and serves as a fulcrum for lifting. Double hook **d** engages the harness frame. The harness is lifted by lowering the handle of the lever. Scarred harness frames and broken heddle-rod openings, often resulting from the use of screwdrivers to lift harnesses, are avoided.*

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PHILADELPHIA AND CHARLOTTE

KINKS & SHORT-CUTS

(Continued from page 186)

or loomfixers to raise the harnesses with screwdrivers. Frequently, the screwdriver was carelessly placed in the harness frame, was allowed to slip, or the point of the screwdriver was permitted to scrape across the frame when the frame was lowered and the screwdriver was being removed.

Such carelessness, of course, usually resulted in scarring the harness frame and often in breaking heddles at the rod openings. When the heddle-rod openings were broken, the heddles often caught on the next harness and caused skips. In extreme cases, entire patterns had to be removed from looms.

To eliminate waste from this cause, we devised a tool for lifting the harnesses during pattern inspection. The harness lifter, shown in the accompanying sketch, not only prevents damage to the harness frame and heddles, but it also makes the job of lifting and holding the frame easier.

Two pieces of ½-in. bar stock approximately 13½ in. long are bent at one end to form hooks, as shown at *a* in the accompanying sketch. These hooks, when engaged in each other and closed, should be approximately 1 in. in diameter. At the unbent end of one of the pieces, attach a handle. This piece thus becomes the lever of the lifting tool.

At a point 4 in. from the hook end of the lever, *b* in the sketch, weld a short length of stock across the lever in a somewhat semicircular manner so that it can be engaged by the lower end of hook *c*. Hook *c*, made of 1¾-in. strap iron, serves as fulcrum for lifting the harness. The 2-in. hook at the upper end fits over the arch of the loom and supports the lever through the hook engaging *b*.

The other 13½-in. length of ½-in. bar stock serves as the lifting rod. To the unbent end of the rod, weld or bolt double hook *d*, which slips under the harness frame and engages the under side of the frame. Hook *d* is made of ¾-in. strap iron.

To use the assembly, place hook *c* over the loom arch and engage loop *b* with the lower end of hook *c*. Raise the handle of the lever, allowing hook *d* to lower into the harness area. Engage the harness to be lifted with hook *d*, and lower the handle of the lever. The harness will be raised by the downward pressure on the handle and can be held easily in a raised position while the inspection is made. *(K-725) H. Clyde Hardy, Greenville, S. C.*

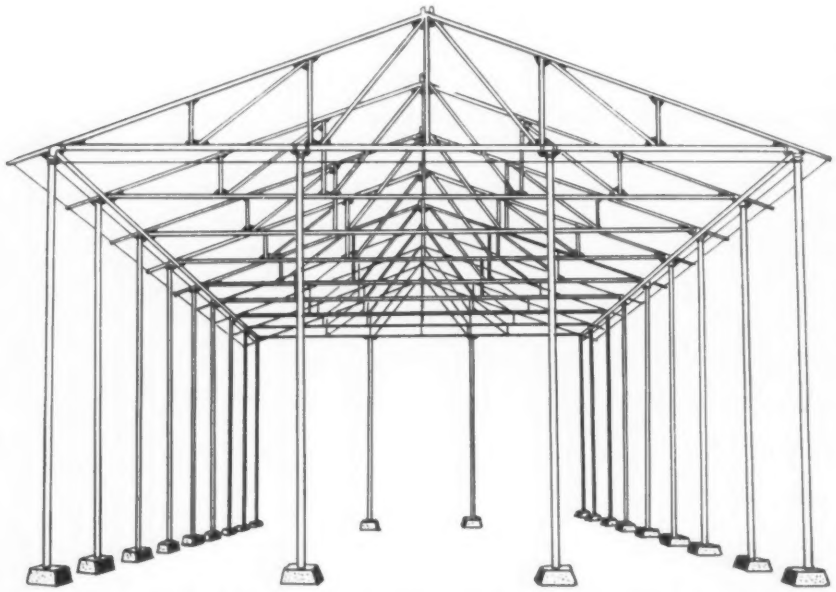
Framework of Building Can Be of Welded Pipe

Low-cost structures for use as warehouses, detached shops, etc. can be built quickly by using second-hand pipe for erecting the framework. Such pipe —obtained from discarded boilers, heating systems, etc.—is usually available at low cost. It can be fabricated by welding.

The framework of a small building is shown in the accompanying sketch. This building measures 30x80 ft.—a floor space of 2,400 sq. ft. It has a height of 15½ ft. from the floor to the bottom member of the truss and 21 ft. from the floor to the ridge of the roof.

Pipe used for the construction was as follows: bottom trusses, 3½ in.; vertical truss members, 2 in.; top truss members, 2½ in.; columns, 4 in., with foundations of ½-in. steel plates anchored to concrete piers; side stringers, 1½ in.; roof stringers, 1¼ in.

A building erected with welded pipe as the framework will meet the requirements of the building code in most localities, but the welding should be done by a first-class welder. *(K-713) The Linde Air Products Co.*

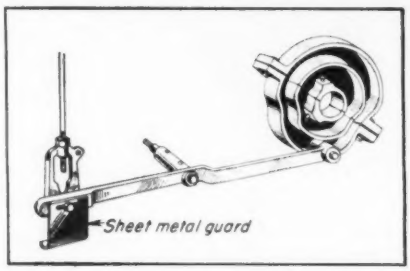


This framework of a building, which was to house a foundry, was built of second-hand pipe welded together. This method of construction is applicable for one-story buildings to be used for such purposes as warehouses and detached shops.

Broken Cam Levers Eliminated by Guard

We used to have quite a bit of trouble with the cam levers on our looms breaking and the cams getting out of time. Usually, this trouble was caused by something falling on the floor and standing upright. If the object came to rest in such a position under the lever, the lever would probably strike it on its next downward stroke. The lever would break, or the same would turn on the shaft and put the magazine out of order.

In order to prevent quills and other loose objects from getting under the lever, we installed a guard similar to the one shown in the accompanying sketch. The guard is made of sheet metal and is bolted to the lever. *(K-710) Tom Vine, Huntingdon, Quebec*



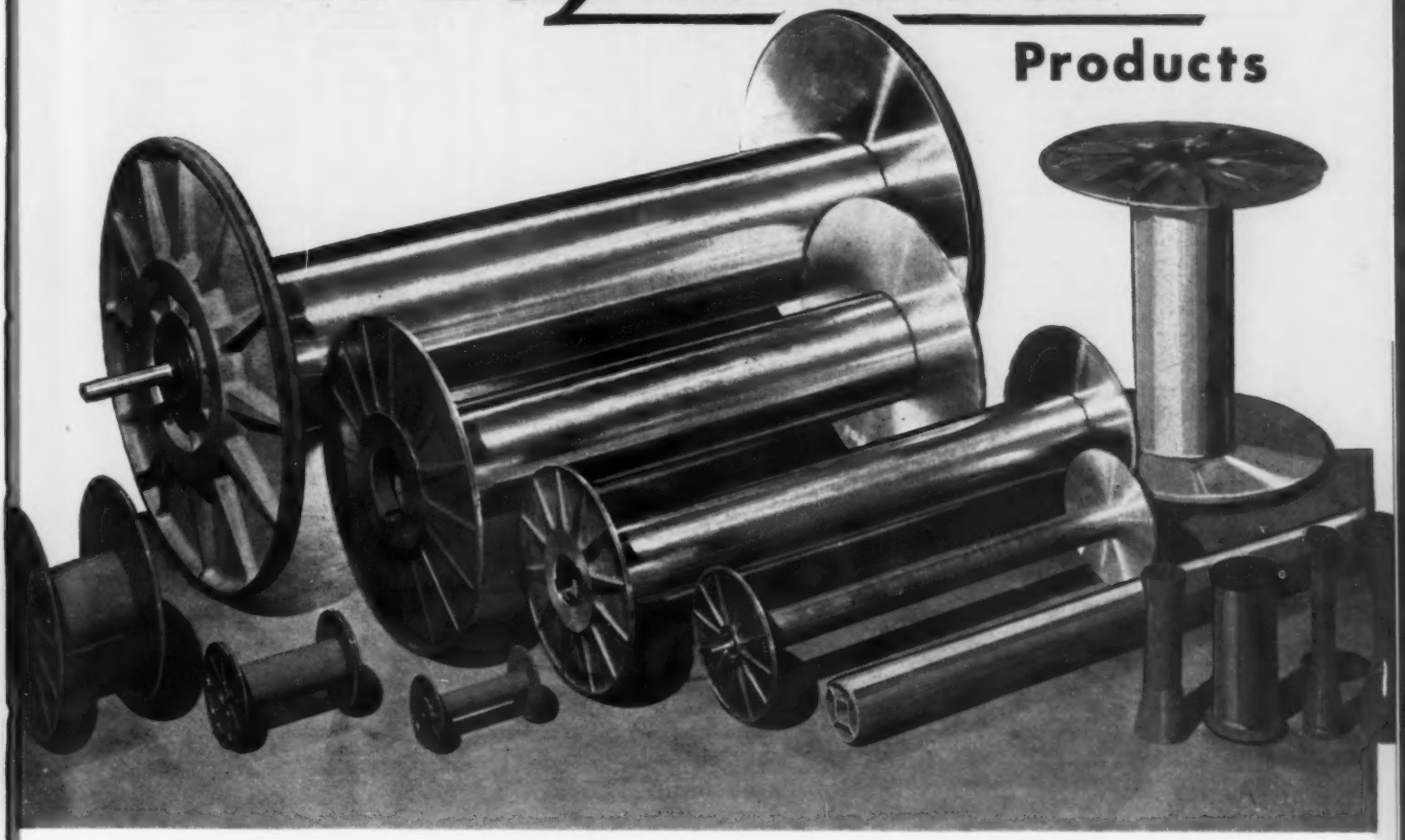
A sheet-metal guard bolted to the cam lever of a loom will prevent quills and other objects from getting under the lever and causing it to break or the cam to turn on the shaft.

Many Heating Needs Met With "Strip Heaters"

The ability of electrical heating units to generate heat at the right spot and confine the heat to a particular area, with accurate temperature control, is leading more and more to their industrial use. As a rule, each application must be engineered separately, but the many types of heaters available make it possible to adapt standard heaters to almost any operation.

If a specific type of heating service is needed for which standard equipment will not serve, it is necessary to build the needed equipment. The so-called "strip heaters" are quite versa-

HAYES "lite-metal" Products



Speed up PRODUCTION *and reduce costs in textile mills*

The light weight—high strength characteristics of magnesium and aluminum plus the specialized equipment and "know-how" of the Hayes organization are combined in "LITE-METAL" warp beams, bobbins, cloth rolls, etc. Their lightness, accuracy and precise balance increase production rates and improve quality of product.

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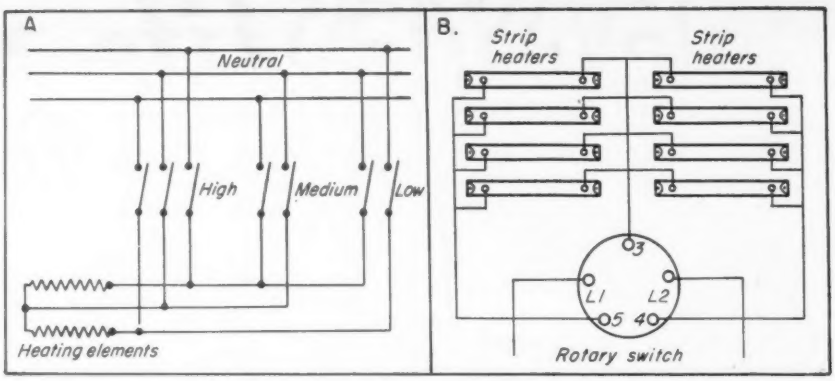
tile for special heating applications. The heating elements are substantial enough to stand up in service, and they can be coupled into a variety of operating circuits.

Diagram A indicates how such heating elements can be connected through a series of switches for various degrees of heat. To prevent excessive voltage drops in load systems, several load-balancing switches may be utilized. In such an installation, maximum heating is provided when switches marked *High* are closed, due to the fact that when the switches are in this position both heating elements receive maximum voltage. With the *Medium* switches thrown, only one side of the heating element is in the circuit; and with the *Low* switches thrown, the elements are coupled in series across the supply wires.

Diagram *B* indicates the type of connection for control of strip heaters through the use of a rotary-type switch. *(K-714)*



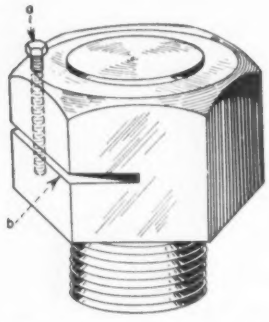
"Strip heaters" installed for special, nonstandard heating applications may be controlled by a series of switches for various degrees of heat—as High, Medium, and Low, or by a rotary switch, diagram B.

Adjustment of Stud Aided by Lock Nut

Now and then it is desirable to change the adjustment of a stud or stud bolt threaded on both ends that is in such a position that only one threaded end is exposed. Usually, two nuts arranged as a lock nut are used for making such an adjustment. Occasionally, there is not sufficient length of thread exposed to use double nuts; and some other means for adjustment must be devised.

The lock nut shown in the accompanying sketch is useful in many such cases.

To make such a lock nut, secure a nut that fits the bolt and drill and tap a $\frac{1}{8}$-in. hole, as shown at a in the sketch. Saw halfway through the nut, as at *b*. Now run the nut up on the bolt and insert setscrew a into the tapped $\frac{1}{8}$-in. hole. The setscrew will have a tendency to close nut *b*, thus causing the threads on the nut to grip the threads on the bolt.



A lock nut can be made from an ordinary nut by sawing slit b in the side of the nut and tapping a hole for 1/8-in. setscrew a. To remove the nut, unscrew a to release the locking action.

A wrench that fits the nut can be used to turn the bolt. When the required adjustment has been made, remove setscrew a. The nut can then be removed. *(K-730)* W. E. Warner, *Essex, England.*

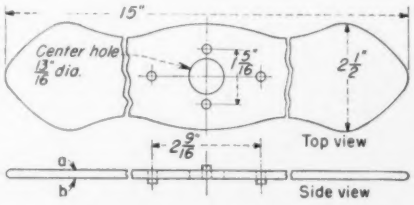
Warper Thread-Roll Nut Requires a Special Tool

The thread roll on a Barber-Colman high-speed warper has a special nut in the left end and a brake drum in the right end. This nut and drum have holes drilled in them for the use of a wrench. However, nobody seems to have ever seen such a wrench as is needed to remove the nut and drum.

Most fixers use a punch and hammer to knock the nuts around; but this method of removing them not only spoils the holes, but it also ruins the soft aluminum threads in the roll. I had the wrench shown in the accompanying sketch made for use on this nut and brake drum.

The wrench is 15 in. long, $2\frac{1}{2}$ in. wide, and shaped as shown in the sketch. A $\frac{13}{16}$-in. hole is drilled in the center of the wrench so that the wrench can be slipped over the thread-roll shaft. Four pins, $\frac{1}{4}$ in. in diameter and $\frac{5}{16}$ in. long, are used. Two of the pins are secured to one side of the wrench at equal distances from and on opposite widthwise sides of the center hole. The center of each pin should be $\frac{1}{4}$ in. from the near edge of the center hole, so that the centers of the two pins are $1\frac{5}{16}$ in. apart across the width of the wrench. This side of the wrench, *side view, a*, in the sketch, is for use on the nut end of the thread roll.

The other two pins are secured to the opposite side of the wrench in a similar manner so that they are $2\frac{5}{16}$ in. apart along the length of the wrench. This side of the wrench, *side view, b*, in the sketch, is for use on the brake-drum end of the thread roll. *(K-718)*



This wrench was designed for removing the special nuts in the ends of the thread roll of a Barber-Colman high-speed warper. The 13/16-in. hole in the center of the wrench slips over the thread-roll shaft. Side a of the wrench is used on the nut end of the roll, and side b is used on the brake-drum end.

Checked Worsted Goods May Need Second Scour

It is sometimes difficult to obtain a good hand and clear finish on checked worsted fabrics that have bright color combinations. Frequently, this trouble can be traced to inadequate scouring. The following treatment will overcome this difficulty:

Use a good soap formula, such as 4 oz. of soap and 2 oz. of alkali per gallon of water. Boil this formula for at least 3 hr. Complete the scouring bath by applying cold water to the formula, stirring as the water is added, until the bath rises to the desired level in the washer.

Enter the goods, and scour for 20 min. If the soap lather shows any signs of stain or dirt, open the gates of the washer and permit the dirty lather to run out. Close the gates again, and add two or three pails of fresh soap solution for each piece of goods. Scour for another 20 min.

This treatment will bring the colors out clear and sharp. *(K-727)*

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Round Table

FOR EXCHANGE OF IDEAS—*The Round Table is open to letters from any and all readers discussing subjects relating to mill management, production, engineering, technology, etc. Names of contributors will be held confidential if so requested, but contributions must be signed with real name and address as evidence of good faith and to permit payment for items published. Address contributions to: Editor Round Table,* TEXTILE WORLD, *330 West 42nd St., New York 18, N. Y.*

Designer of Twill Line Should Consider Cost

In the March issue of Round Table, contributor *R*-328 had a very interesting discussion on the effect of twist on the twill line of a weave.

Having been designing for years, I feel that I am qualified to comment on the proposed method for controlling the twill line. It is my opinion that the method outlined by *R*-328 is the most expensive way, from a manufacturing standpoint, that could be used. The same twill-line results can be obtained much more easily at considerably less cost.

The rule I have always followed to get a subdued twill line is to have the twill lines go in the same direction as the warp twist; that is, a right-hand twill with Z-twist warp yarn and a left-hand twill with S-twist yarn. For a pronounced twill line, run the twill in the direction opposite to that of the twist, as right-hand twill with S twist.

I doubt seriously the wisdom of having more than one twist in the mill at a time, as recommended by *R*-328, and would do it only as a last resort. Such a condition would necessitate additional handling, labeling, and supervising—all of which contributes to increased cost. *(R-359)*

Short Wool Fibers Cause "Pilling" on Garment

A fault sometimes encountered in knitted outerwear fabrics is the tendency of the wool fibers to rub up into small balls, sometimes referred to as "pilling."

This balling up usually occurs on fine-quality wool, particularly on wool that has not been recombed after slub or top dyeing. The short fibers, which would normally be removed by a recombing operation, work to the surface of the yarn and rub up into balls.

Yarn manufacturers usually prefer a fine crossbreed wool to merino for yarns that must stand up to rubbing during garment wear, and shafty wools are preferred to those of shorter fibers. The tendency to ball up can be reduced also by introducing into the blend a small percentage of skin wool. Too large a percentage of this type of wool should be avoided, however, because skin wool may make the handle of the garment harsh and also decrease wearability.

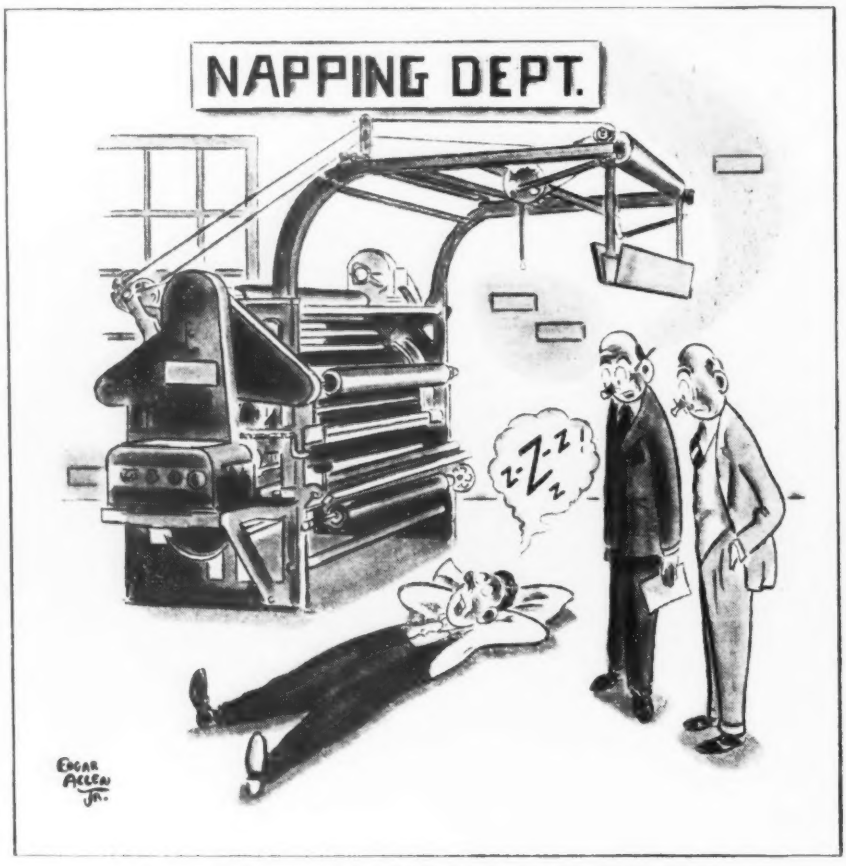
Improvement in pilling can often be obtained by balancing the spinning and plying twists. Generally, spinning twist has less influence on the final characteristics of the yarn than does the plying twist; but harder twists in both processes, where practicable, have a binding influence on the fibers and make it more difficult for them to detach themselves from the core of the yarn. Twist, of course, increases manufacturing cost and causes a harder hand of the fabric.

A shrink-resistant treatment may be helpful. Most of these treatments depend upon modifying the outer scale of the wool fiber, so that the fibers will lie better. However, such treatments also tend to detract from the soft-handling properties of the fabric. *(R-365)*

Attract More Good Men, Mill Manager Says

I was considerably interested in the editorial "Wanted: Trained Men" on page 4 of the June issue of TEXTILE WORLD. In the Dec., 1941, issue you will find a letter under the heading A Challenge to Textile Schools, written

TEXTILE TICKLES . . . . . *By Edgar Allen, Jr.*



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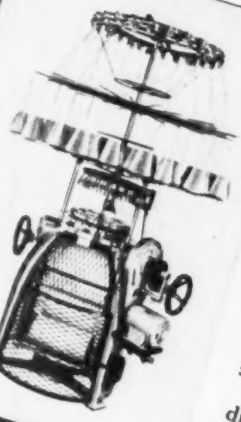

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With the Body Size Model MJ the planned body size of the garment comes right off the machine. This high-production, multiple feed machine turns out a variety of jersey fabrics in either solid colors or a wide range of horizontal stripes. Knits cotton yarn from 8/1 to 36/1 or their equivalents in wool, rayon and silk. New, infallible Micromatic Stitch control assures precision stitch uniformity.

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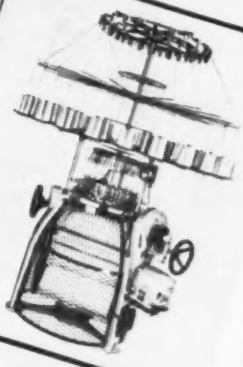

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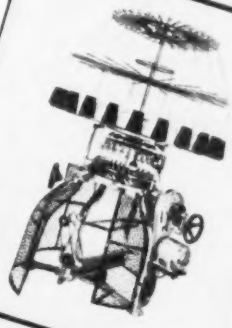
A multiple feed, loop pattern wheel machine with an unusual knitting elements system, the Supreme Model ML Pile Fabric Machine can produce a variety of cloths for novelties, bed jackets, lingerie, swim suits etc. The cloth can be brushed, napped or used "as is". The 20" diameter—24 feed size and 24" — 32 feed size are standard.



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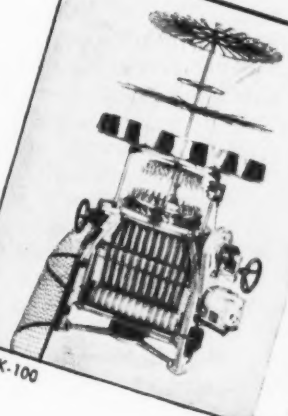
The Supreme Model IC Coating Machine produces heavy and light-weight fleeces and other coating materials, for use in topcoats, overcoats, ski suits, blankets, etc. Ruggedly constructed to withstand continuous operation of heavy wool yarns. The 26" diameter — 36 feed size is capable of producing 54" to 56" finished fabric.



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MODEL ROF • Knits Oversize "Floatless" Patterns at 30 Yds. Per Hr.

This Supreme "Floatless" Pattern Wheel Machine is equipped with 3 Level Unitary Pattern Wheels to produce oversize pattern fields, *with no loose floats*. With the same set of needles and pattern wheels you can knit and welt, knit and tuck, welt and tuck on any or all feeds, *without resorting to hand selection or changing of cams*. This machine gives you wide pattern versatility; yet it is simple to operate and maintain.

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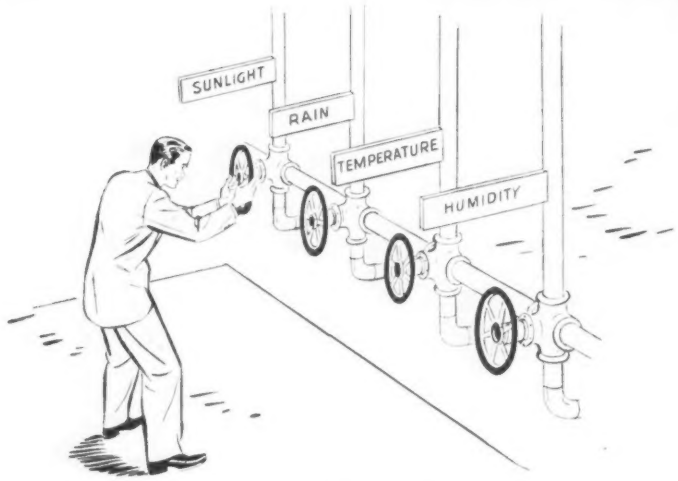

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in answer to an article by Henry G. Lord in the preceding November issue.

This subject of adequate training for textile men has been dormant in TEXTILE WORLD since 1941, with the exception of announcements of funds being made available for new buildings and equipment for various textile schools. TEXTILE WORLD is the best medium through which thinking textile men can be reached; therefore, it should keep up a continuous barrage of suggestions as to ways and means of improving the all-important education of textile people.

Having been identified with the manufacture of textiles for the last 38 years, I am qualified to express an opinion as to what the needs of my chosen business are.

Textile work has always been something into which people drifted and where plodding labor was the main requisite. The mill village and exploitation drove the more ambitious into more promising fields until the fact that one worked in a textile mill was nothing to brag about.

For years I have deeply resented these conditions. In every group of men, regardless of where they are or the kind of work they do, you will find the same types of people with the same potentials. A group of textile men is no exception. In such a group can be found smart, alert men fully capable of leadership that could do great things for our industry. Of course, we have men with these qualifications now; but their number is nothing in proportion to the needs of this vast industry.

We do need new buildings and modern machinery, along with better teachers, in our textile schools; but if the funds being made available now are used only to intensify that which has been and is now being done, the net result—which is the producing of a good potential textile man—will be exactly the same as in the past.

First, we must attract those who are seeking careers that will fit their ambitions and of which they will feel justly proud. One of the most profitable ways that a generous portion of the available money could be spent would be to use it in a widespread glamourizing campaign such as is used to attract students to the schools of other industries. Pick up a magazine that carries school advertising, and you will find engineering, electrical, air-conditioning, mechanical-dentistry, Swedish-massage, chiropractic, railway-mail, civil-service, motion-picture, radio, radar, and just about any other kind of advertising except textile. Everything is glamorized and made at-

(*Continued on page 198*)

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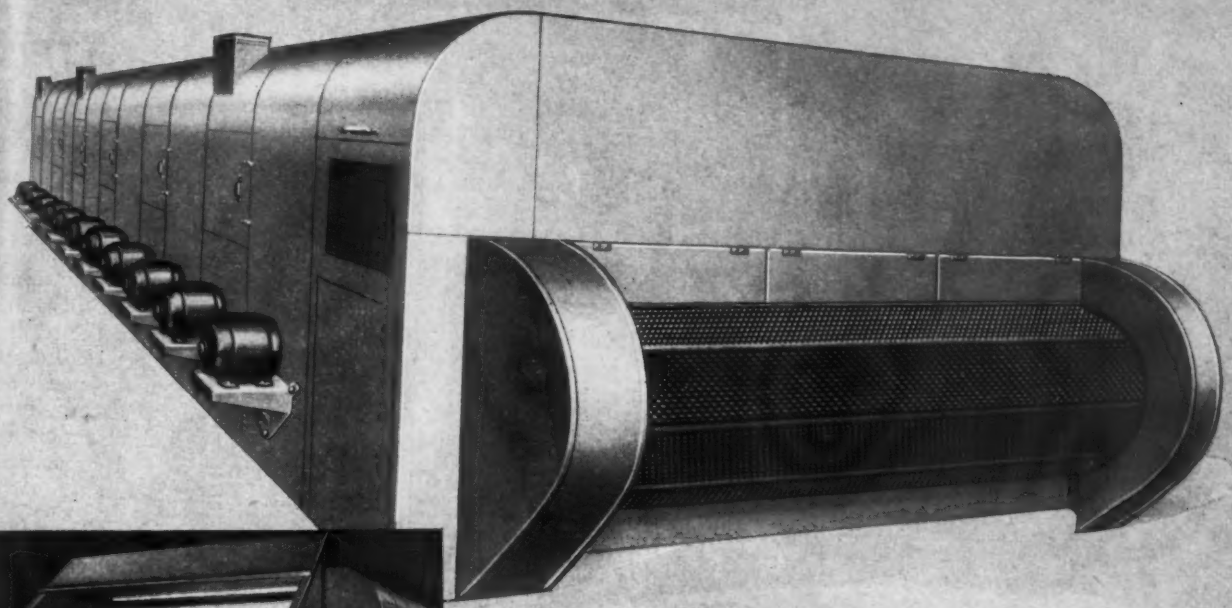

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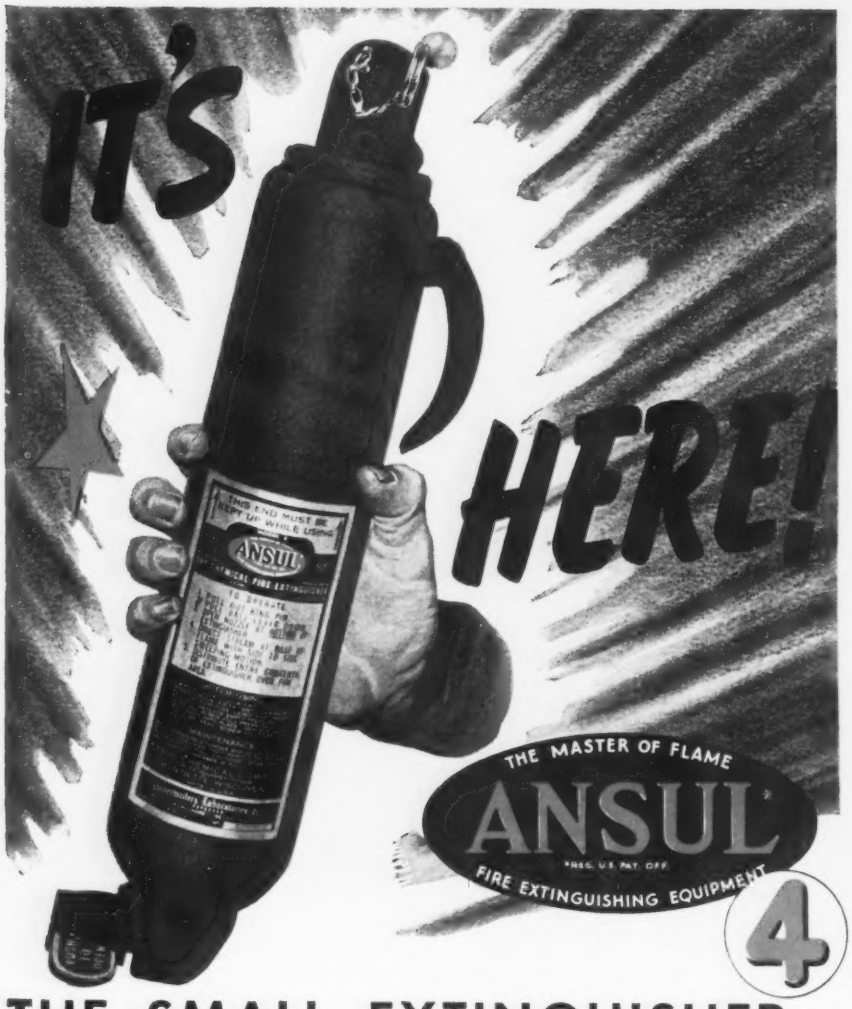

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FIRE EXTINGUISHER DIVISION, MARINETTE, WISCONSIN

tractive to the young person who is ambitious.

Textiles, which have much more to offer keen minds, are generally left to those who have a living to make and to whom it does not matter greatly where they make it.

It seems that it is about time that the entire textile industry should wake up and find the real answer to this question so that TEXTILE WORLD will not have to write a full-page want ad as an editorial. There is no question that TEXTILE WORLD would be glad to give publicity to any forward movement, but the movement should be started and made possible by those who will reap the greatest benefits.

We need good minds in the textile industry today as never before. Let us have more publicity on the needs of textile education, with opinions from mill management and also from graduates of schools as to what is needed and what they are not getting. (R-358)

Control Tension In Worsted Warping

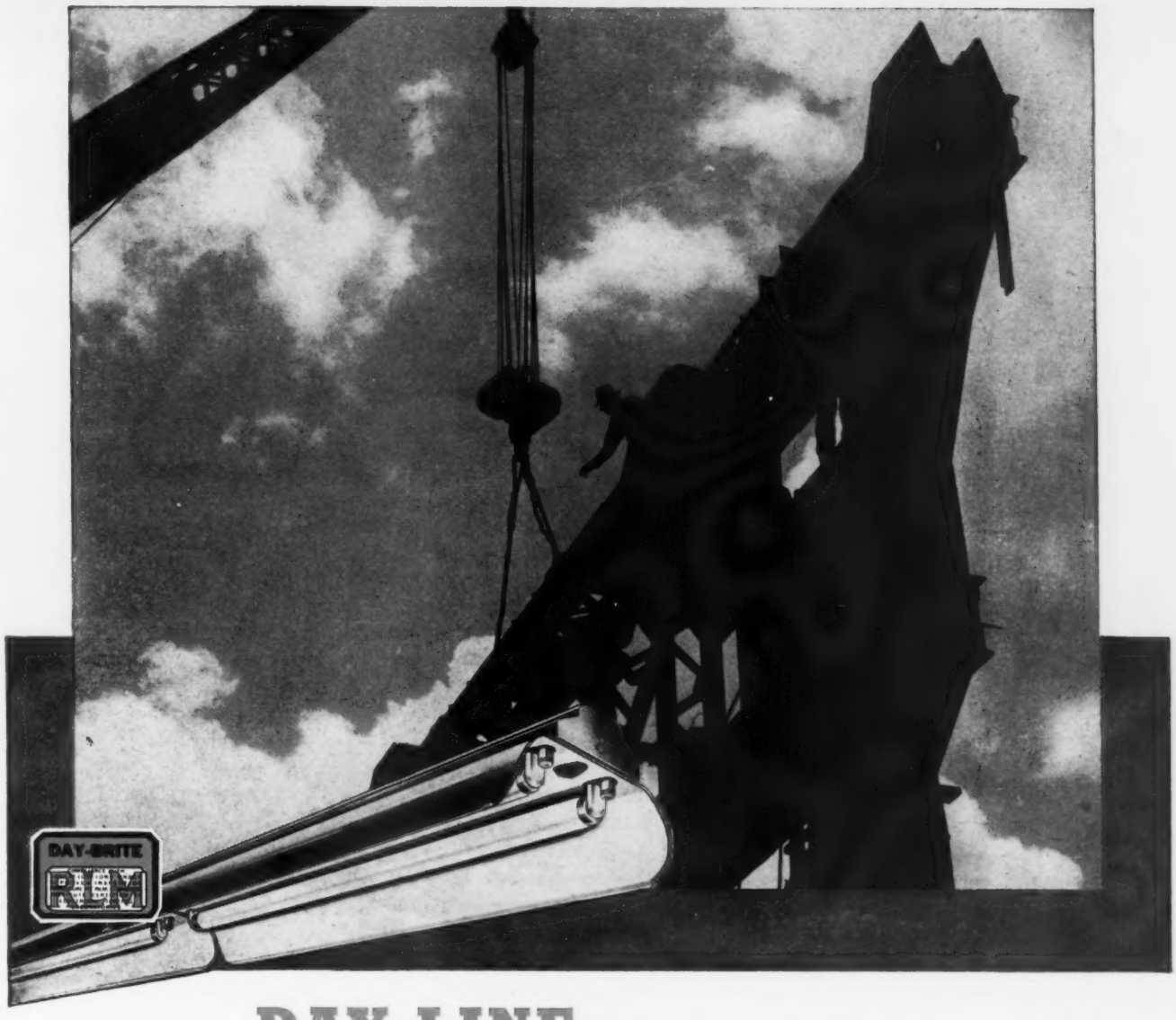
One of the most important factors in making a good worsted warp is the tension on the ends, and this is one of the factors that has long been left to chance.

In worsted warping, the material is usually wound into cheese form and creeled into one or other of the various types of creels, such as V-shaped, straight, semicircular, and magazine creels. The disadvantages of drawing direct from a package that is steadily diminishing in size is readily apparent. The yarn has a much heavier weight to pull around when the cheese is full, and this weight gradually diminishes as the cheese runs off. This disadvantage is not serious on some types of yarn. For high-class, fine worsteds, and even fine woolens, the disadvantage is more acute; and where this type of creel and package are used on fine counts, the cheeses are kept to small dimensions to avoid undue strain on the yarn.

A serious disadvantage also occurs where all the cheeses consistently diminish in size. Since the warp is built up sectionally, there is excessive tension at the beginning of the warp in the first two or three sections, and the tension diminishes as further sections are added. One side of the piece, when woven, will be tight and the other side slack.

One method of guarding against this trouble is to start the warp with a number of smaller cheeses so that these will run out and full cheeses will

(Continued on page 204)



DAY-LINE...

Stress-Engineered Like a Bridge

Its truss-like channel is structurally designed to withstand years of vibration and rough handling. The heavy-duty DAY-LINE has strength to spare down to the smallest detail. That means you save substantially on upkeep. May we send Bulletin 30-A with complete details?

The DAY-LINE

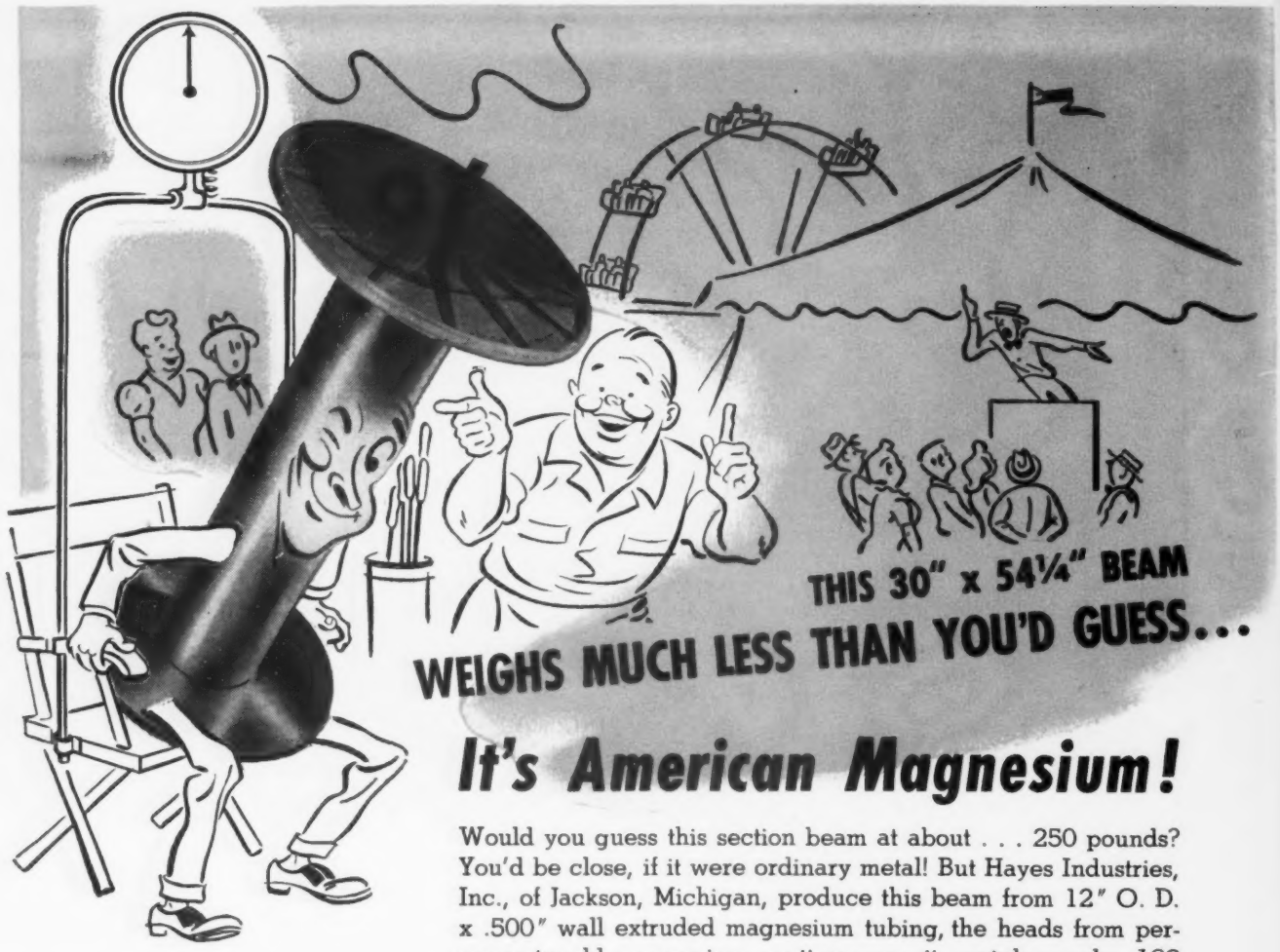
Heavy duty industrial fluorescent fixture with porcelain-enameled steel reflectors. Designed for two and three 40- or two 100-watt lamps—unit or continuous installations. U. S. Patent Nos. 2317434, D-135375 and D-133458.

Day-Brite Lighting, Inc., 5455 Bulwer Avenue, St. Louis 7, Mo.
Nationally distributed through leading electrical supply houses.
In Canada: address all inquiries to Amalgamated Electric Corp., Ltd., Toronto 6, Ont.

292

2ND INTERNATIONAL LIGHTING Exposition and conference
PLAN TOMORROW'S LIGHTING TODAY
STEVENS HOTEL Chicago
NOV. 3-7 1947

IT'S EASY TO SEE WHEN IT'S
DAY-BRITE Lighting



THIS 30" x 54¼" BEAM

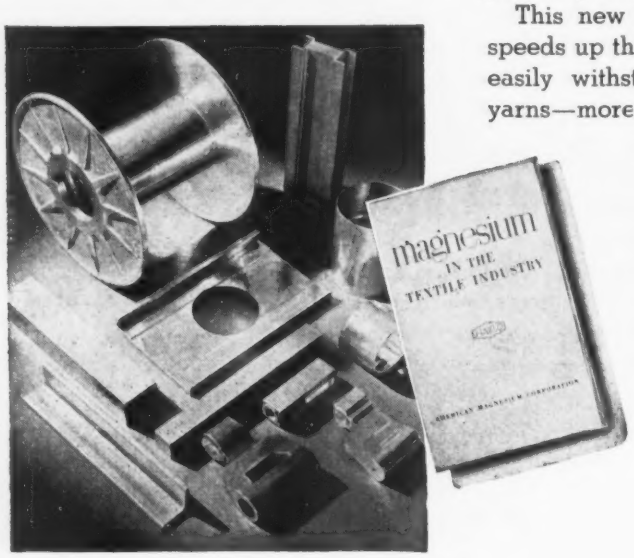
WEIGHS MUCH LESS THAN YOU'D GUESS...

It's American Magnesium!

Would you guess this section beam at about . . . 250 pounds? You'd be close, if it were ordinary metal! But Hayes Industries, Inc., of Jackson, Michigan, produce this beam from 12" O. D. x .500" wall extruded magnesium tubing, the heads from permanent-mold magnesium castings—so it weighs *only 163 pounds, including heavy metal shafts!*

This new beam is a timesaver. Its extremely light weight speeds up the warping operation. Its high strength and stiffness easily withstand the tremendous forces exerted by modern yarns—more yards per hour of *any* yarn!

Add to these advantages magnesium's dimensional accuracy that reduces vibration, lowers maintenance costs—and you'll agree that section beams of American Magnesium are worth further investigation. For a copy of "Magnesium in the Textile Industry," write ALUMINUM COMPANY OF AMERICA, sales agent for American Magnesium products, 1705 Gulf Bldg., Pittsburgh 19, Pa.



MANUFACTURERS OF TEXTILE EQUIPMENT

Write for booklet "Magnesium in the Textile Industry". It describes fully the weight, corrosion-resistance, and production advantages offered by American Magnesium.

MAGNESIUM MAZLO Reg U.S. Pat. Off. PRODUCTS

AMERICAN MAGNESIUM CORPORATION

SUBSIDIARY OF ALUMINUM COMPANY OF AMERICA

MANUFACTURERS' BULLETINS

***READERS** may secure copies of literature reviewed on these pages by using the post cards below. Fill out **COMPLETELY** one coupon for each piece wanted.*

Free FOR THE ASKING

1. **Magnetic separators** for spouts, chutes, conveyor belts, and picking tables are described and illustrated in a booklet issued by Bauer Bros. Co. Specifications and application data are listed.

2. **Freight conveyors** for handling boxes, bags, cases, cartons, and crates are described and shown in action in a folder issued by A. B. Farquhar Co. Engineering data and specifications on types of conveyors for various applications are included.

3. **Flame- and mildew-proofing** with a single agent, Permaproof, a product of B. F. Goodrich Co., are described in the company's recent folder.

4. **Substantiation of claims** for superiority of Sol-Speedi-Dri for absorbing oil and grease from floors is the subject of a folder by Safety & Maintenance Co.

5. **"Flatlock Machine,"** folder 902, issued by Willcox & Gibbs illustrates and describes flat-seaming operations on knit underwear, lingerie, etc.

6. **A stainless-steel welding fittings** catalog, No. 747, is available from Tri-Clover Machine Co. Complete data are presented on physical characteristics, bursting pressure, fabrication, and adaptability of welding fittings to other type fittings.

7. **"Handling, Sampling, and Testing of Fatty Acids"** is the title of a booklet issued by Armour & Co. Storage, pumping, sampling, testing, and processing are described.

8. **Uses of stainless steel** in textile processing are described in a booklet issued by Electro Metallurgical Co. Qualities and applications are discussed.

9. **A catalog of Leesona winders** has been issued by Universal Winding Co. Construction and application of the Nos. 50, 150, and 90 winders; Roto-Coner, and special winders are included, as well as data on No. 50 yarn speeds and a winding production chart.

10. **Fire-fighting equipment,** types, and applications, are described in a reprint from *Factory Management & Maintenance* available from Associated Factory Mutual Fire Insurance Cos.

11. **A constant-speed tuber** made by Van-Vlaanderen Machine Co. is described and illustrated in a new booklet. Constant, high-speed, and accurate measuring are featured.

12. **Recording thermometers and gages** of the 500 series are illustrated and described in bulletin T835 of the Bristol Co. Chart ranges, chart drives, thermometer bulbs, and measuring elements are covered.

13. **Wring-Master pneumatic squeezers** by Rodney Hunt Machine Co. are described in Bulletin 945. Features, specifications, and application data are included.

14. **Floor, wall, and roof resurfacing** is completely described in a booklet issued by Stonhard Co. Properties of all types of Stonhard resurfacing compounds and application to various materials is comprehensively covered.

15. **Solvent recovery** by the Columbia activated-carbon system; its importance, operation, cost, application, and equipment used are presented in a booklet available from Carbide & Carbon Chemicals Corp.

16. **The all-purpose rotary union** for connection of steam or water piping to revolving shafts or drums made by Perfecting Service Co. is described and illustrated in a new booklet. Operation, application, engineering data, and photographs of installations are included.

17. **Knitting of coating fabrics** on the Supreme Model IC lay-in coating machine is described in a folder issued by Supreme Knitting Machine Co. Versatility and operation of the machine, as well as specifications are featured.

Instructions for use of post cards on other side

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McGraw-Hill Publishing Co., Inc.

18. Washfountains, multi-stall showers, and drinking fountains are described in a booklet by Bradley Washfountain Co. Washroom planning data are also included.

19. Chemical consultant services are described in a booklet issued by Foster D. Snell, Inc. Types of service are listed, as well as policies on charges and agreements.

20. Steelbinder equipment for steel strapping of boxes and other packages is shown and described in a folder available from A. J. Gerrard & Co.

21. Printing on vinyl film is fully discussed in a recent issue of *Interchemical Review.* All methods and problems encountered are listed and described.

22. Stock gears and sprockets of American Gear & Mfg. Co. are fully listed in the company's new catalog 340. Gears of all compositions and applications are included, as well as prices and engineering data.

23. "Glycols" is the title of a new booklet published by Carbide & Carbon Chemicals Corp., presenting in detail the properties, specifications, and uses of the many glycols produced by the company. Included are 30 charts and 94 literature references.

24. Bronze bearings and bars of the Bunting Brass & Bronze Co. are fully listed in a new catalog. Included are the company's new bronze electric-motor bearings, and engineering data on operation and installation.

25. Rayon plants built by Oscar Kohorn & Co. throughout the world are listed in a new folder.

26. Anchoring machinery with Unisorb felt is discussed in an illustrated booklet issued by Felters Co. Numerous textile applications are shown and described.

27. "Testing in Modern Industry" is the title of a booklet available from U. S. Testing Co. A review of the history of testing and the company; a description of services of the company; and various useful tables of equivalents, conversion factors, and other data useful to textile mills are included.

28. Talk-a-Phone communications systems are listed and applications and features described in a booklet issued by Talk-a-Phone Mfg. Co., Chicago, Ill.

29. Open width dyeing machines that operate without tension are described in a recent folder published by Van Vlaanderen Machine Co.

30. Automatic equipment for pressure and level control and other steam-plant equipment is described and illustrated in a book issued by Kieley & Muller, Inc. The company's full line, with engineering data, is included.

31. Grinding machinery and stripper rollers of B. S. Roy & Son Co. are described in a new illustrated booklet. Features of the full line are shown and described.

32. Sources of piping design information are listed in the latest installment of Piping Engineering, a series published by Tube Turns, Inc.

33. Polyethylene compounds, including Carbowax are listed and fully described in a new publication of Carbide & Carbon Chemicals Corp.

34. Replaceable-type air filters, their use and installation, are described in a booklet issued by American Air Filter Co.

35. Electric size-cooking controls of Barber-Colman Co. are described in a new, illustrated folder, Bulletin F-3054.

36. Small-parts cleaning by the L & R precision cleaning machine is discussed and features of the machine described in a catalog sheet issued by L & R Mfg. Co.

37. Zeolite water-conditioning equipment, its operation and some typical installations, are described in publication 4021 of Cochrane Corp.

38. Fire extinguishers of water and antifreeze types which require no recharging and only simplified maintenance are shown and described in a folder issued by Pyrene Mfg. Co.

39. Instructions for sizing and coning nylon with the No. 250 sizing machine and No. 50 machine fitted with pineapple-cone and front-line attachments are contained in a publication of Universal Winding Co.

40. "Paterson, the Strategic City" is the title of a booklet by the Industrial Commission of the city of Paterson, N. J. Complete data on advantages of the city as an industrial location are featured.

41. Dye becks of Rodney Hunt Machine Co. are shown and fully described in a new booklet. Machine features and dimensions are included.

42. Ultra-violet light applications to textile processing are discussed in a publication of Ultra-Violet Products, Inc.

43. Winding machines of Mellor Bromley & Co., Ltd., and their features, are described in a new publication.

44. Water demineralizers employing the ion-exchange method are described in a publication of Barnstead Still & Demineralizer Co.

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What about **Aluminum** *Bobbins?*

#1 #3 #2

"Will aluminum Bobbins serve ALL purposes BEST for ME? Will they cost more or less? Will they weigh more or less? Will they last longer and give better production? These are typical questions we CAN answer for you. From experience, we know there are many places or operations where, beyond any doubt, aluminum Bobbins will serve the purpose best."

Pictured above are three Bobbins to illustrate.

#1 is a worsted yarn Twister Bobbin with Lestershire magazine feature. The yarn is also conditioned on this Bobbin.

#2 is a Spinning Bobbin for certain high strength filament yarns.

#3 is similar in usage to #1 except it is used in rayon or nylon processing.

These three Bobbins are examples of where aluminum serves the purpose best. There are many more places where similar Bobbins can serve *your* purpose better.

Any of our representatives will be able and glad to prove to you whether or not yours is such an operation.

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JOHNSON CITY, NEW YORK

How to bring those distant suppliers closer to home

It's like having all your suppliers close at hand, when you specify Air Express delivery. Air Express gets you what's wanted in mere hours . . . no matter *where* your suppliers are located.

Planes carrying your Air Express shipments are bigger and faster today. Even overnight coast-to-coast deliveries are routine. Same day delivery between many airport towns and cities. And Air Express rates are *low*. Use this speedy, profitable service regularly to keep customers satisfied, and business running without a hitch.

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Just phone your local Air Express Division, Railway Express Agency, for fast shipping action . . . Write today for Schedule of Domestic and International Rates. Address Air Express, 230 Park Ave.. New York 17. Or ask for it at any Airline or Railway Express Office. Air Express Division, Railway Express Agency, representing the Airlines of the U.S.

AIR EXPRESS

AIR EXPRESS GETS THERE FIRST

Fastest delivery—at low rates

Trailer parts (51 lbs.) needed in Los Angeles *fast*. Picked up at Portland, Ore., factory 5 PM on 13th, delivered first thing next AM 821 miles away—*in time!* Air Express charge $12.52! Other weights, any distance equally inexpensive and *fast!*

1927— 20TH YEAR OF GETTING THERE FIRST! — 1947

be creeled in, thereby insuring that there is not a preponderance of either heavy or light cheeses at one time. These difficulties have been overcome in the magazine-type creel that will take cones. The supply is over end, and each end can be tensioned individually. Electric stop motions will stop the swift when an end breaks or runs out.

Correct tensioning of individual ends during the running onto the swift is more than half the secret of good warps; but unless the warp is correctly laid on the swift, there is little advantage to be gained. Correct laying of each section on the one previously built is also required. The criterion of a warp correctly put on the swift is that there are no hollows or ridges. The former is perhaps the worst of the two evils, since there is undue strain on the ends on top of the ridge. When they are lying on the swift and also when they are beamed off, the warp ends should form an unbroken line on which a ruler may be placed without seeing light beneath it. *(R-362)*

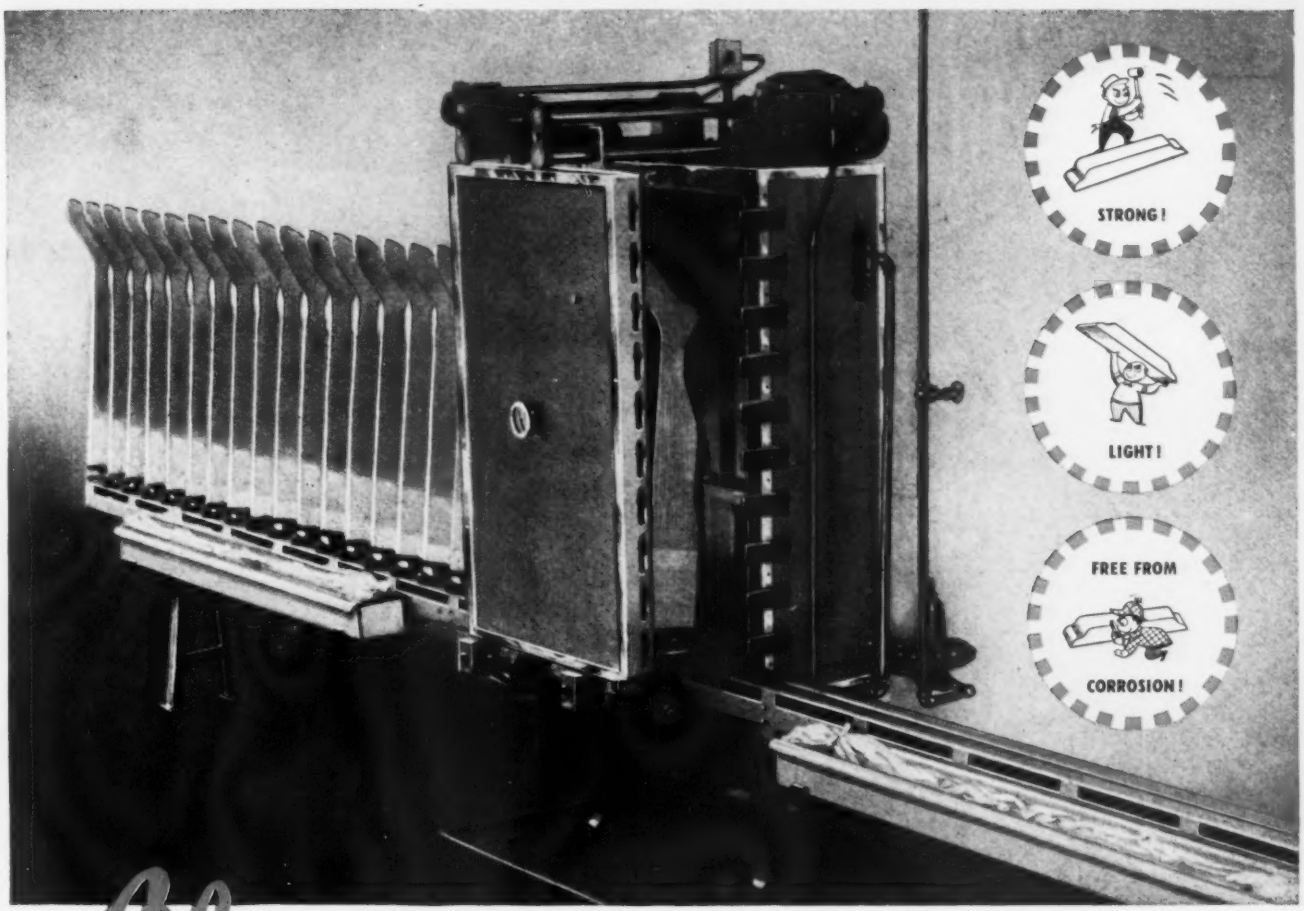
British Tension Gage Aids Worsted Beaming

A Yorkshire textile manufacturer and inventor, D. R. H. Williams, who has applied his patented tension control to finishing machinery, has now applied it also to beaming with very satisfactory results.

In the process of beaming, tension is applied by means of a steel band lined with leather, which fits around a pulley on the swift shaft and retards the ends as they are being wound onto the beam. The beam itself is driven positively by means of wheel gearing, and its lateral movement is transmitted from the swift shaft by a screw shaft.

An aid sometimes used in distributing tension among the ends during beaming is to employ what is referred to as a "half lease." This aid consists merely in having a lease rod behind the first lot of lease bands. In the past, it has been largely a matter of guesswork to decide what pressure should be put on the brake to give a firm warp beam.

With the Williams tension gage, this guesswork is eliminated. Actual spring tension exerted upon the yarn is indicated in pounds on a dial. Adjustment of the tension can be made quickly. Cleaner shedding of the warp during weaving is obtained with warps beamed with controlled tension. *(R-363)*



Aluminum stocking forms keep their shape . . . make doffing easier

Stocking forms of Reynolds Aluminum are light and easy to handle... have superior strength. Repeated trips through the preboarding steam chamber will not change their shape nor harm their finish.

Even the most delicate nylon hosiery can be preboarded on aluminum forms. The bright, highly polished finish will not rust or corrode, requires no painting or coating. Long-lasting aluminum stands up under the roughest handling... maintenance costs are cut.

If you are designing a new machine, or considering the purchase of new equipment, call in Reynolds Textile Engineers. They will be glad to consult with you . . . help you take advantage of the many possibilities of aluminum design to cut costs and eliminate dead weight. No obligation, of course.

Write to the Reynolds field service office nearest you, or to Aluminum Textile Sales Division, Reynolds Metals Co., 310 Hanna Building, Cleveland 15, Ohio.

Other applications where strong, light, rustproof Reynolds Aluminum does a better job for the textile industry . . . and for you!

Doffing and Roving Trucks
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Trident or Cheese Boards
Cake Trays and Yarn Trays
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Bobbins, Spools, Spinning Cylinders
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Bobbin Racks, Pin Boards, Cone Boards

REYNOLDS METALS

REYNOLDS
THE GREAT NEW SOURCE OF **ALUMINUM**

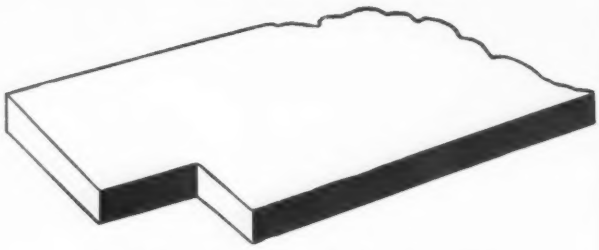
2542

INGOT · SHEET · SHAPES · WIRE · ROD · BAR · TUBING · PARTS · FORGINGS · CASTINGS · FOIL · POWDER

UNION PACIFIC

TREASURE MAP OF INDUSTRY

Nebraska*



* *One of a series of advertisements based on industrial opportunities in the states served by the Union Pacific Railroad.*

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- MAJOR LIVESTOCK PACKING AND PROCESSING CENTER
- AMPLE WATER SUPPLY
- NATURAL GAS, COAL, OIL AND ELECTRIC POWER
- RICH MINERAL DEPOSITS
- DIVERSIFIED INDUSTRIAL ACTIVITY
- STRATEGIC DISTRIBUTION LOCATION
- EXCELLENT RAIL TRANSPORTATION
- SKILLED, FAIR-MINDED LABOR
- NO SALES OR INCOME TAX

Industries engaged in the packing or processing of farm products find Nebraska a rich source of raw materials. Corn, grains, sugar beets, potatoes and other vegetables are grown in abundance.

Omaha is a leading meat packing and poultry processing center. It frequently leads the nation in livestock receipts, is located in the world's largest butter producing area, and houses the nation's second largest industrial alcohol plant.

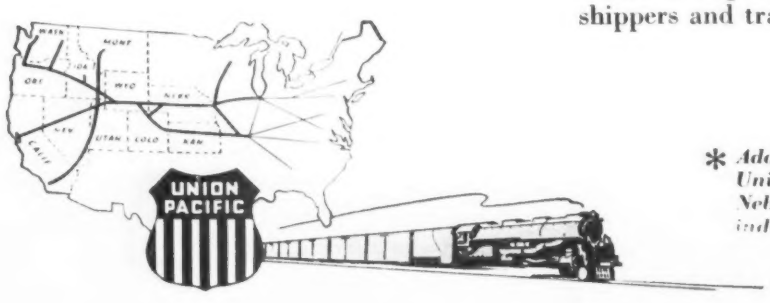
In addition to agricultural activity, there is diversified industrial manufacturing such as farm machinery, air conditioning equipment, fabricated steel, brick and tile.

Nebraska has large mineral deposits; gypsum, salt, potash, sand, gravel, stone, etc. Natural gas, petroleum and coal are readily available.

Of particular interest to industry is Nebraska's "pay-as-you-go" policy; no state sales, income or luxury taxes. It is a good place to work and live.

* * *

In Omaha are the headquarters of the Union Pacific Railroad which provides efficient, dependable transportation for shippers and travelers.



* *Address Industrial Department, Union Pacific Railroad, Omaha 2, Nebr., for information regarding industrial sites.*

UNION PACIFIC RAILROAD

THE STRATEGIC MIDDLE ROUTE

"ENGINEERED WITH "built-in-control" FOR PERFECT THROW

. . . "built-in-control" is another special construction feature of Dayton Thorobred Reversible Drop Box Pickers designed to lower your picker costs and increase loom efficiency.

To insure highest maximum efficiency, the shuttle contact area of Dayton Thorobreds is built with special rubber compounds to the exact degree of resiliency needed to absorb the terrific shuttle impacts and provide perfect throw during the entire life of the picker. The contact point is constructed of a soft composition which prevents shuttle point loosening, increases production schedules and helps to insure the lowest cost per loom hour of operation. Other construction features are explained briefly at the right. For the complete story, write today to:

TEXTILE PRODUCTS DIVISION • DAYTON RUBBER
Main Sales Office: Woodside Bldg., Greenville, S. C.
Factory: Waynesville, N. C.

ADDITIONAL SPECIALLY ENGINEERED CONSTRUCTION FEATURES

HARD BEARING SURFACE

The specialized rubber and fabric around the spindle hole of a Dayton Reversible Picker forms an extremely hard composition bearing. Result—the spindle hole, instead of wearing egg-shape, stays perfectly round.

SOFTER AROUND PICKER STICK HOLE

The terrific impact of the picker stick meeting the picker is cushioned by a softer composition around the picker stick hole. Result—less wear on the stick and longer life for the picker.

Dayton Rubber
THE MARK OF TECHNICAL EXCELLENCE IN NATURAL AND SYNTHETIC RUBBER

Want Money to Finance Machinery and Equipment Purchases?

FILL OUT AND MAIL FORM BELOW

YOUR TOTAL COST PER $1,000 FINANCED:
12-Month Terms . . . $37.50 24-Months . . . $77.50 36-Months . . . $122.50

Under its Machinery and Equipment Purchase Plan, Commercial Credit is ready to finance all your purchases of new or used machinery and equipment . . . even equipment engineered and built to meet your special requirements . . . at the uniformly low cost shown above. Under this plan, you make a nominal down payment and we supply the balance. You repay us monthly, with the help of increased earnings and economies effected by the equipment.

FOR IMMEDIATE ACTION . . . just fill out the form below. We'll send a detailed plan to fit your specific needs. This plan will be submitted with the complete understanding that you are not obligated in any way. Fill out the form **now**, mail it **today**.

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Gentlemen:

We are considering the purchase of Machinery and Equipment as follows:

This will cost approximately $..... which we are interested in financing over a period of..... months. Without obligation on our part, please submit a detailed plan to cover this financing.

Name ..... Title .....

Company .....

Address .....

Questions and Answers

Long-Draft Spinning Frame Is Basis of AmericanSystem

Technical Editor:

I have heard that worsted spinners are trying out a new system that promises to cut costs and raise the quality of worsted yarn. If such is the case, will you please give me as many details as you can? (9194)

You are apparently referring to the American system of worsted spinning. There has been a good bit published on this subject; and many mills, worsted and cotton, are experimenting with this method of spinning. At least one major textile-machine manufacturer is building machinery for this purpose.

Basically, the American system consists in spinning worsted yarns on modified long-draft, cotton-type machinery. The applications, as currently experimented with, vary significantly only in the preparatory process. There are instances where cotton-type drawing and roving frames are used and others where worsted machinery is used up to the roving process.

It seems likely that the method of preparation will be dictated by the staple length used and the quality of yarn desired. The all-cotton-type machinery is said to be successful with fibers up to 3½ in., while the combination worsted-cotton system is being used with fibers up to 5½ in.

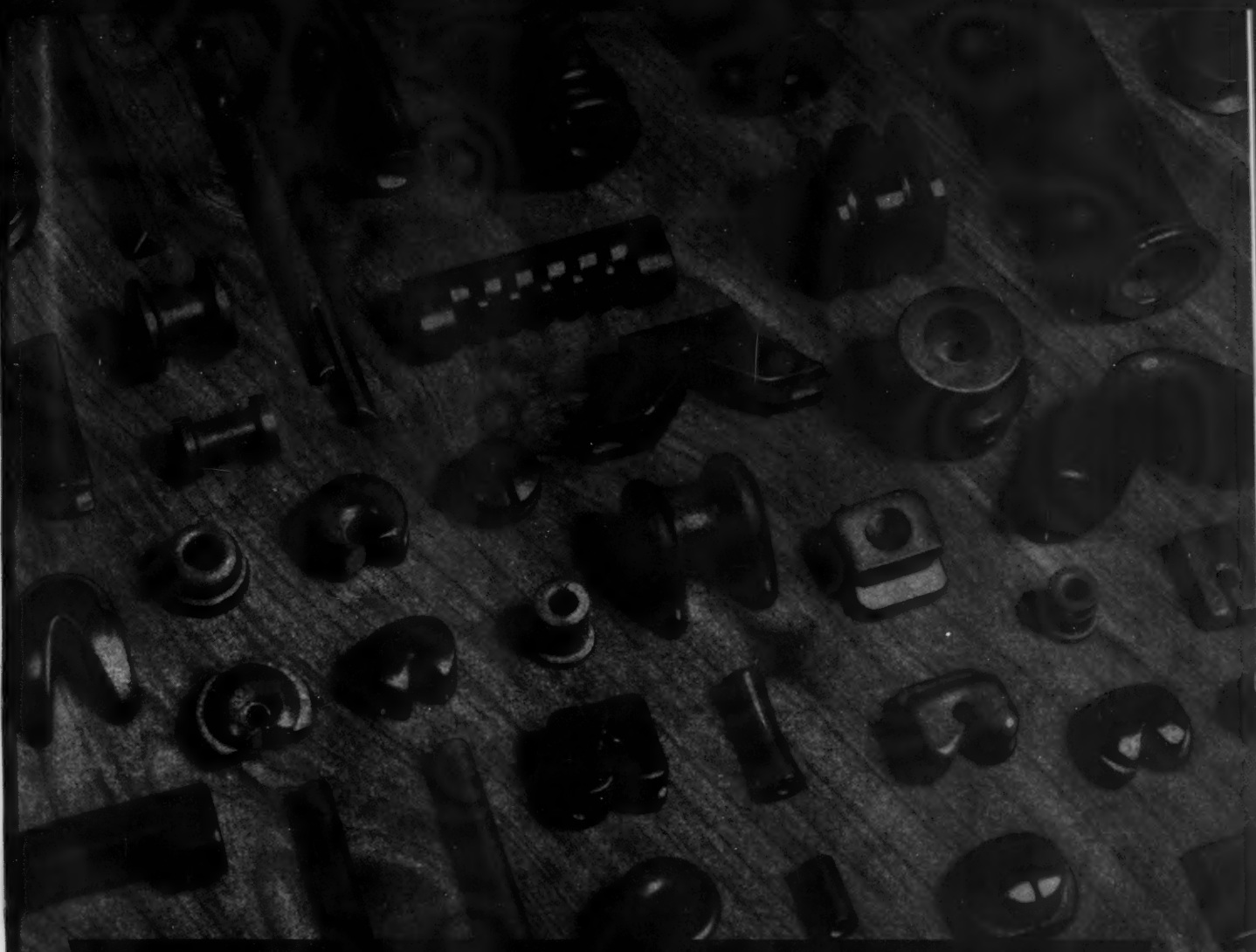
For more details, see the *Wool Flow Chart* in the August issue of TEXTILE WORLD and the articles on the American system March, 1947, page 110 and March, 1946, page 123.

Cationic Softeners Have Desirable Properties

Technical Editor:

Your article on cationic softeners in the February issue [Cation Softeners Give Permanent Finish, page 147] has recently become of increased interest to us. We are particularly interested in the possibility of applying a cationic softener from an alkaline bath and in finding a softener that

(Continued on page 212)



for running MONOFILAMENT
test ALSIMAG 193 thread guides

TRADE MARK REGISTERED U.S. PATENT OFFICE

- **FOR WEAR**
- **FOR STATIC CONTROL**

Processors of monofilaments, such as Nylon, Velon, Lumite, Seran and others, have encountered exceptional difficulty with guide wear and with static electricity. This has created a soaring demand for AlSiMag 193 custom made thread guides.

A yarn of several filaments twisted together distributes its friction due to the relatively uneven surface of the yarn. But monofilaments have a single continuous surface. This means greater wear on the guides. It also creates additional static problems.

In most instances the answer to both wear and static problems is the use of AlSiMag 193 Custom Made Thread Guides.

These hard, homogeneous, smooth guides give far longer service than any other guide except synthetic jewels costing several times as much. Their cost per pound of yarn processed is far lower than that of any guide on which we have found cost records.

AlSiMag 193 is a conductor of electricity. Many troublesome static problems can be overcome by bleeding the static off through AlSiMag 193 guides. When installed, a conducting compound must be used (some adhesives are non-conductors) and the guide must be effectively grounded.

AlSiMag 193 Thread Guides are the ONLY ceramic guides which combine exceptional wear with the property of electrical conduction. We suggest that you test these guides in your plant. Your test records will tell the story.

46TH YEAR OF CERAMIC LEADERSHIP

AMERICAN LAVA CORPORATION

CHATTANOOGA 5, TENNESSEE

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NEWARK, N. J., 671 Broad St., Tel. Mitchell 2-8159 • CHICAGO, 9 S. Clinton St., Tel. Central 1721 • SAN FRANCISCO, 163 2nd. St., Tel. Douglas 2464 • LOS ANGELES, 324 N. San Pedro St., Tel. Mutual 9076

AMCO fan units for controlling air intake are easily installed without sacrifice of interior machine set-up.

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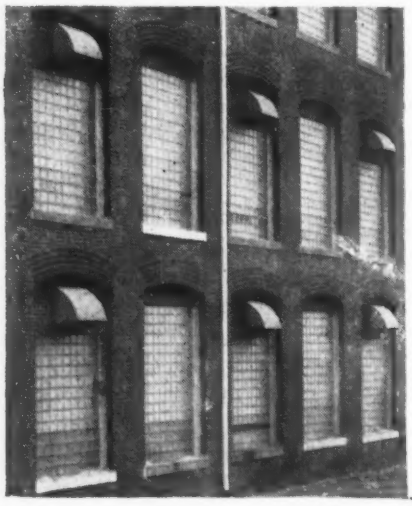
BENEFITS FROM AMCO HUMIDIFICATION AND COOLING

- Reduces excessive temperature and holds relative humidity at point best suited to fibre and process.
- Increases worker comfort and efficiency.
- Speeds production in high friction (heat) areas.
- Assures evener yarn counts and increases breaking strength.
- Waste and fly greatly reduced.
- Gradually increases regain for good roving and consequent better spinning.
- Drafting of fibres smoother and more compact.

Modern, insulative glass bricks pave the way to interior heat and moisture control in this mill. AMCO fan-powered air intakes alternate with automatically controlled vents.



• If your mill is already equipped with a humidification system, you have taken the first step to improve quality and increase production.

Your next step—AMCO Evaporative Cooling—utilizes your present humidification system to obtain top quality and maximum production.

With the AMCO Evaporative Cooling System the desired relative humidity is accurately maintained by introducing atomized water spray. The frictional heat of high speed machines is absorbed by evaporation of the moisture in conjunction with carefully controlled air flow. No expensive changes are necessary . . . no air ducts to install . . . no jump in maintenance costs.

Why not take this second step now? An AMCO engineer will be glad to show you how you can modernize your plant simply and economically for better quality and increased output.

AMCO

HUMIDIFICATION and COOLING

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How to shave soap WITHOUT CUTTING ITS SUDS

QUADRAFOS* improves detergency . . . yet decreases soap consumption

Wherever you use soap in textile wet processing, you can cut soap consumption 25% to 50% with easy-to-use QUADRAFOS. At the same time, you'll notice marked improvement in detergency . . . This greater washing power with less soap comes from three properties of QUADRAFOS. It softens even the hardest water without precipitation . . . conditions the goods . . . redissolves any lime soap formed in previous operations or introduced with the goods . . . Milder than soap, QUADRAFOS will not harm the most delicate textile fibers . . . can be added dry to many operations. Write for more information about the way QUADRAFOS can help you reduce costs and improve quality in practically every processing step. Use the coupon below.

softens water without precipitation...deflocculates ...redissolves precipitates...promotes free rinsing

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*U. S. Reg. Trade-Mark for Sodium Tetraphosphate made by Rumford

RUMFORD CHEMICAL WORKS
Technical Service Department
11 Newman Avenue
Rumford 16, Rhode Island

Please send me Bulletin No. 140 describing 27 uses for QUADRAFOS in textile wet processing. I'm particularly interested in:

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Firm .....

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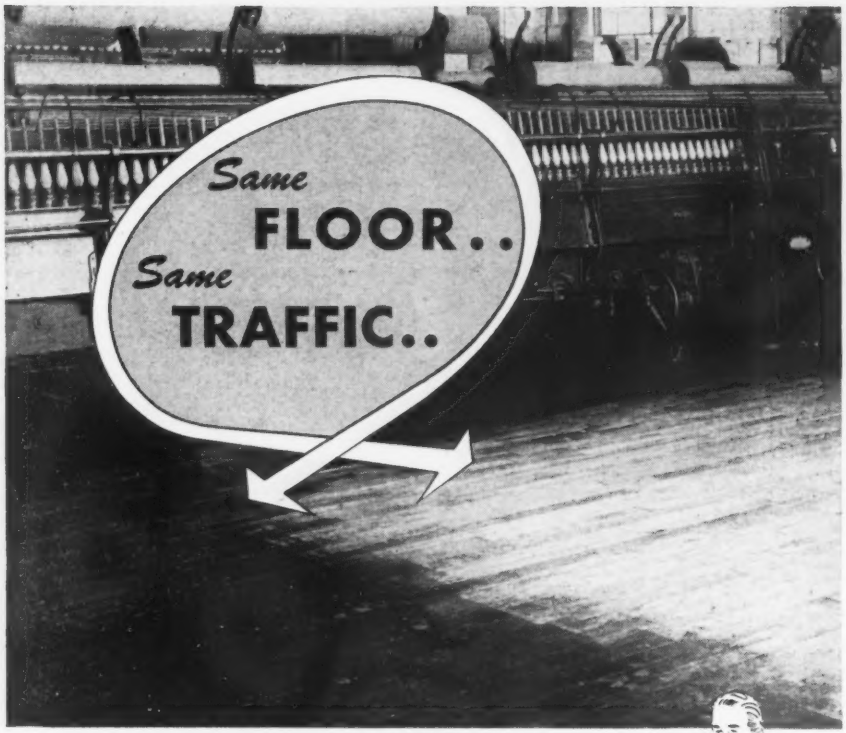

...but TENNANT
DRY-CLEANING
makes the difference!

What a contrast! An old, oil-soaked floor made 533% brighter . . . safer than before . . . and given a smooth, hard surface that resists dirt penetration —*all because it's dry-cleaned the* TENNANT *way.*

Gives you BRIGHTER, SAFER FLOORS . . . AT LESS COST

Are there dark, slippery floors in your mill due to prolonged wet-scrubbing? Then check these advantages of the TENNANT System:

RECONDITIONS your floors. Fast, easy-to-use Tennant machine brings your floors to life again! Gets rid of dark, rough, oil-soaked fibers . . . leaves floor bright.

HARDENS surface to resist wear. Special sealing process fills, binds and hardens wood fibers. Makes your floor resist dirt penetration . . . prolongs floor life.

DRY CLEANS, eliminates scrubbing. A fast, one-man job . . . with no mess or bother. Keeps floor lustrous, DRY, non-slippery. Enthusiastically approved by hundreds of mills.

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TENNANT
INDUSTRIAL FLOOR MACHINE

- Cleans floors, picks up soilage.
- Complete accessories for ALL your floor maintenance work.

Tennant Floor Machines have 12" or 16" revolving steel wool roll (or other accessory) that smoothly removes dirt and traffic stains. Very speedy and easy to use. Provides a smooth, dry, hard surface . . . saves man-hours.

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The way to finer floors
TENNANT
Floor Maintenance System
ESTABLISHED 1870

The Tennant System ENDS SCRUBBING

Floors, like roads, are safer when DRY!

will also impart wetting-out properties. We had thought that both of these properties were contrary to the natural properties of fibers until we read your article. Can you advise us as to what cationic softeners are stable to what percent of caustic soda and also the alkaline-stable softeners that are good wetting agents? (9191)

There are several cationic softeners now available that have the properties you mentioned in varying degrees. In the accompanying table, softeners are identified by numbers instead of trade names; but the properties listed indicate the possibilities of this class of softeners.

Softener	pH of a 1.0% solution (alkacid test paper)	% NaOH tolerance (1.0 solution)	Wetting time of sulfur-dyed twill (1.0% solution)	
			At 80° F.	At 110° F.
Water	7.0	.....	48 hr.	48 hr.
1	12.0	1 to 2	3 min.	3 min.
2	9.5	1 to 2	25 sec.	10 sec.
3	4.0	gels	25 sec.	10 sec.
4	5.0	4	60 sec.	30 sec.
5	6.0	ppt.	25 sec.	10 sec.

Cotton-Woolen Fabrics Bleached as Wool

Technical Editor:

We are considering bleaching mixed wool-and-cotton fabrics with hydrogen peroxide. Our problem consists in treating small quantities at a time, such as four pieces of 64-in. fabric weighing approximately 100 lb. each. We have been advised to use the peroxide at a volume of about 2 for a period of 6 hr. at a temperature of 105° F. Can you advise us whether or not these are the best procedures for obtaining a good bleach? (9190)

To bleach cotton-woolen fabrics, it is necessary to use a solution designed primarily for wool in order to avoid damage to the wool content of the cloth. This necessity requires that relatively low temperatures and alkalinities be used.

If your mixture will contain about 50% cotton and 50% wool, you should scour the goods in a stainless-steel or wooden machine of the slack-washer type.

The bleaching process should be carried out at a temperature of about 130° F. A two-volume solution is satisfactory. Make up the solution with 600 gal. of water, and add about 24 lb. of sodium silicate (4 lb. for each 100 gal. of solution). Run the cloth in this bleach solution for about 30

(*Continued on page 216*)

Rayon Reports

Issued Monthly by American Viscose Corporation, New York, N.Y.

A chemist at the AVC Viscose Staple Development Plant, Nitro, W. Va., weighing out a sample of viscose solution. Devoted exclusively to the development of viscose rayon staple, the Plant conducts semi-commercial research to develop new products, and on chemical, economic and mechanical problems.

New Wax for Textile Fibers Softens, Lubricates, Is Anti-Static Agent

"Avcolube"* 100, a versatile new synthetic wax, has just been introduced by American Viscose Corporation. Extensive commercial tests have proved it an effective, economical agent for obtaining increased efficiency in textile processing and improved final quality. The self-emulsifiable compound has a remarkable combination of lubricating, softening and anti-static properties for all types of textile fibers.

It is a particularly valuable lubricant for dyed yarns, especially those of fine denier and low twist, on which it greatly improves winding and processing efficiency. In the knitting field, it may be applied to knitting yarns during the dyeing cycle, eliminating application of lubricants for later winding or knitting.

"Avcolube" 100 is chemically stable to all textile processing conditions. It is non-volatile, it does not migrate during drying nor cause changes in light fastness or wash fastness of dyed goods.

Technical service and assistance in working out specific applications of "Avcolube" 100 will be gladly furnished by the Textile Chemicals Division of the AVC Textile Research Department under whose specifications the product is made by the Atlas Powder Company, Wilmington, Del. Inquiries should be addressed to Textile Research Department, American Viscose Corporation, Marcus Hook, Pa.

*T. M. Reg. U. S. Pat. Off.

SIR SAMUEL SALVAGE COMMEMORATIVE BOOK

AVC is making available a booklet sketching the life of Sir Samuel Salvage, former president and chairman of the board. His death occurred in 1946.

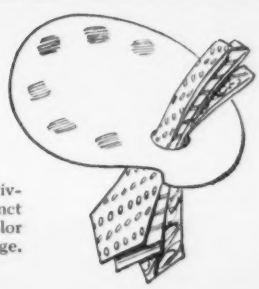
The book is published just 50 years from the date—1897—when the young Englishman started his own small business, as an importer. His "artificial silk" imports so convinced him of the fiber's possibilities that by 1910 he had encouraged formation of the first company in America to produce it . . . The American Viscose Company, forerunner of the present corporation.

In telling the story of the man, the book touches on many fascinating high lights of the growth of the rayon industry . . . on which Sir Samuel's efforts have left such lasting effects. Copies on request.

RAYON 20 YEARS AGO

An impressive annual survey of rayon's startling progress takes up 40 pages of a leading textile magazine.

Rayon in necktie fabrics is giving manufacturers two distinct sales advantages—wider color range and wider price range.



MAKE USE OF *Avisco* 4-PLY SERVICE

To encourage continued improvement in rayon fabrics, American Viscose Corporation conducts research and offers technical service in these fields:

1 FIBER RESEARCH
2 FABRIC DESIGN
3 FABRIC PRODUCTION
4 FABRIC FINISHING

AMERICAN VISCOSE CORPORATION

America's largest producer of rayon

Offices: 350 Fifth Avenue, New York 1, N.Y.; Charlotte, N. C.; Cleveland, Ohio; Philadelphia, Pa.; Providence, R. I.; Washington, D. C.; Wilmington, Del.

LOCATION IS *Everything!*

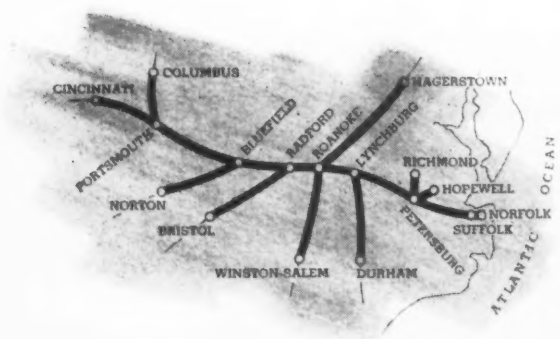
A 'CHIP SHOT' TO THE GREEN... a sure thing, because the lie of the ball — the location — is just right.

Perfect plant location demands that everything be "just right", too.

For that perfect industrial spot, consider well the land served by the Norfolk and Western. Here you'll find abundant raw materials . . . intelligent native labor, skilled and unskilled, plenty of pure water . . . alert cooperative communities . . . modern power service . . . friendly tax policies . . . nearness to domestic markets and, through the Port of Norfolk, to the markets of the world . . . an almost unlimited supply of all-purpose Bituminous coal mined along the N. & W., with short distance hauls . . . good climate . . . and the Norfolk and Western's *Precision Transportation* to the North, South, East and West.

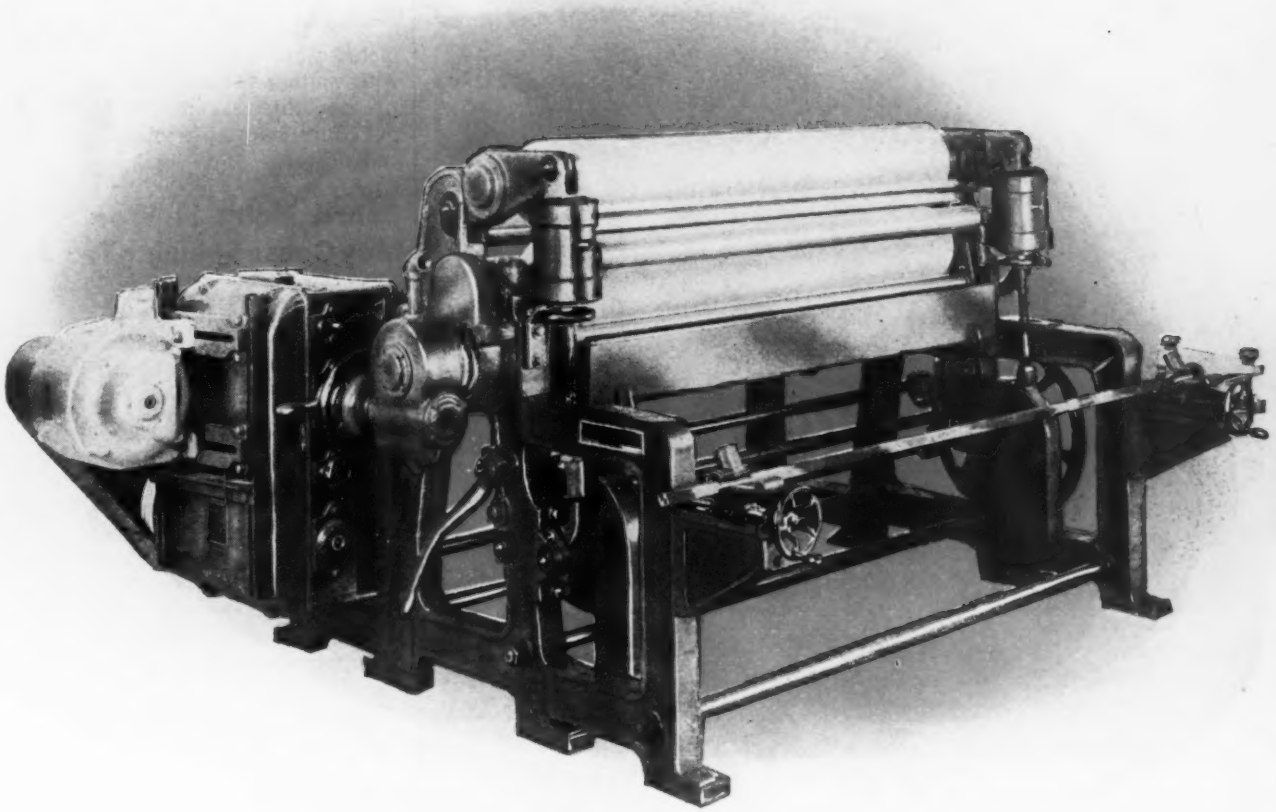
At a glance, you can see that this is a land *with everything "just right!"*

The Norfolk and Western maintains a complete file of up-to-the-minute intelligence on industrial locations in the territory it serves. For detailed information about any section of this territory, call or write the Industrial and Agricultural Department, Norfolk and Western Railway, Roanoke, Virginia. Your inquiry will be treated with strictest confidence.



Norfolk and Western RAILWAY

FOR BETTER PLANT LOCATIONS



V. V. HEAVY DUTY QUETSCH-PADDER

Now is the time to replace obsolete two-roll quetsches with this new quetsch-padder. It is heavier in all respects. For example: it gives you up to three tons pressure at the nip, instead of less than a ton given by old machines.

This new quetsch-padder is used as an individual machine for applying finish or when placed in front of dry boxes, tenters or Palmer-tenters for dyeing or other wet treatment.

Instead of lever pressure—pressure system is air, hydraulic or spring, as desired by purchaser. Transmission is variable speed type. Solution pan is made of stainless steel. Rolls are rubber covered and entire machine is designed and manufactured for rugged service.

VAN VLAANDEREN MACHINE COMPANY

370 Straight St., Paterson 3, New Jersey

World's largest manufacturers of machines for processing modern fabrics

Back of every great development in Textiles stands the Bobbin

A Hosiery Manufacturer develops a new twist construction . . . It calls for a change in the throwing operation . . . possibly a new type Bobbin.

Before that new construction reaches the hosiery counter, Cloverleaf-Freeland works with the throwster, studying all of the problems involved. Is the present Bobbin outmoded? Shall we try a new type barrel, a new head? Is the traverse right?

This is just one example of Bobbin "engineering" at Cloverleaf-Freeland — engineering that builds great Bobbins.

CLOVERLEAF-FREELAND CORP.
Hazleton, Pa. Honesdale, Pa.

CLOVERLEAF-Freeland BOBBINS

min., so that the goods will be thoroughly saturated.

Cut the ends and allow the pieces to steep in the bleach solution until a satisfactory white is obtained. This steeping usually requires from 3 to 6 hr., depending upon the quality of the cotton and the whiteness desired.

After the bleaching has been completed, wash the cloth thoroughly, first with warm water and then with cold. At least three washes are usually required to remove the residual peroxide and silicate.

Beard Hairs in Wool May Cause Spinning Trouble

Technical Editor:

Can you identify the inclosed sample of hair? What type of machinery would be best for spinning this material into a fine yarn? (9192)

The fibers seem to be wool fleece and beard hairs from the alpaca, although there is a possibility that the wool came from a Paco-vicuna, a cross-breed of a vicuna and alpaca. Since the length of the fibers does not run over 6 in., the wool is probably noils.

These fibers can be processed on standard worsted machinery. However, the presence of the beard hairs (the large-diameter fibers) may cause difficulty in spinning if a very fine yarn is spun.

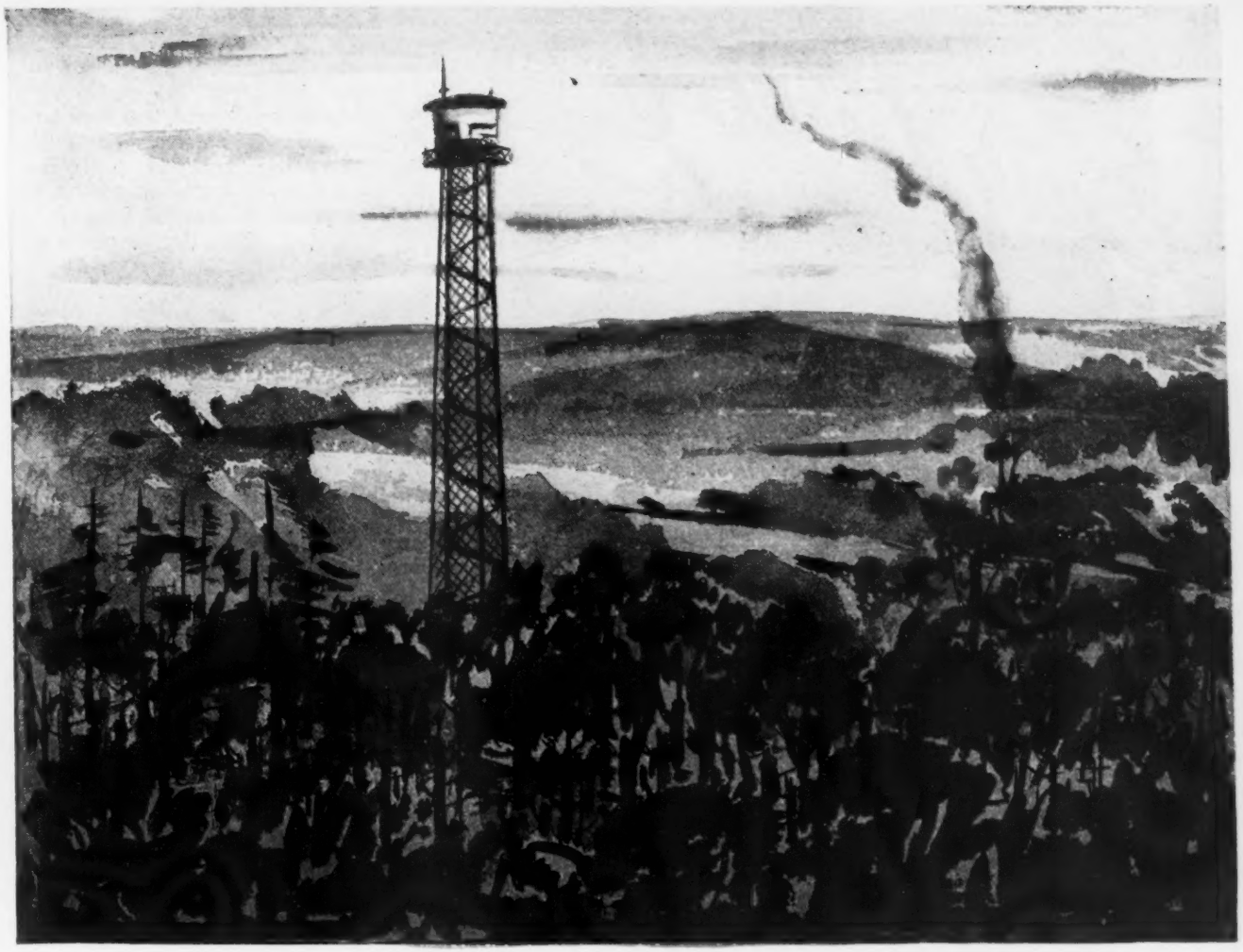
Transformer Polarity Is Easily Checked

Technical Editor:

Can you tell me how to test the polarity of a transformer? I should like to know tests for both alternating and direct current. (9193)

As you no doubt know, the polarity of a transformer is the relative direction of the induced voltage in the secondary winding with respect to the primary at the terminals of the windings at a given instant, or the relation of the high-voltage and low-voltage leads with respect to each other. When the induced voltages of the high- and low-voltage sides are in the opposite direction to each other, the polarity is additive. When the induced voltages are in the same direction, the polarity is subtractive.

Alternating-current test. Connect one of the secondary leads of the transformer, as 2 in the accompanying sketch, to one of the primary leads, as 4. Connect the transformer to an alternating-current source. Any voltage within the range of the voltmeter may be used, providing the insulation value of the windings is not exceeded. Connect the voltmeter and read the



When there's trouble in the wind

That wisp of smoke could mean serious trouble.

But the man in the fire tower knows the way to avoid real trouble is to take prompt action when he gets the warning signal.

In your de-sizing operations you probably receive plenty of those signals that give warning of trouble ahead. Perhaps a variation in the sizing formula used, or variables in water, indicate an unusual problem to be met.

Bleachers and dyers count on Diastafor brand de-sizing agent—Type L when problems like these arise. They know they can depend on Diastafor to work well under widely varying conditions. Diastafor will give good results in a wide range of temperatures—and in a wide pH range as well.

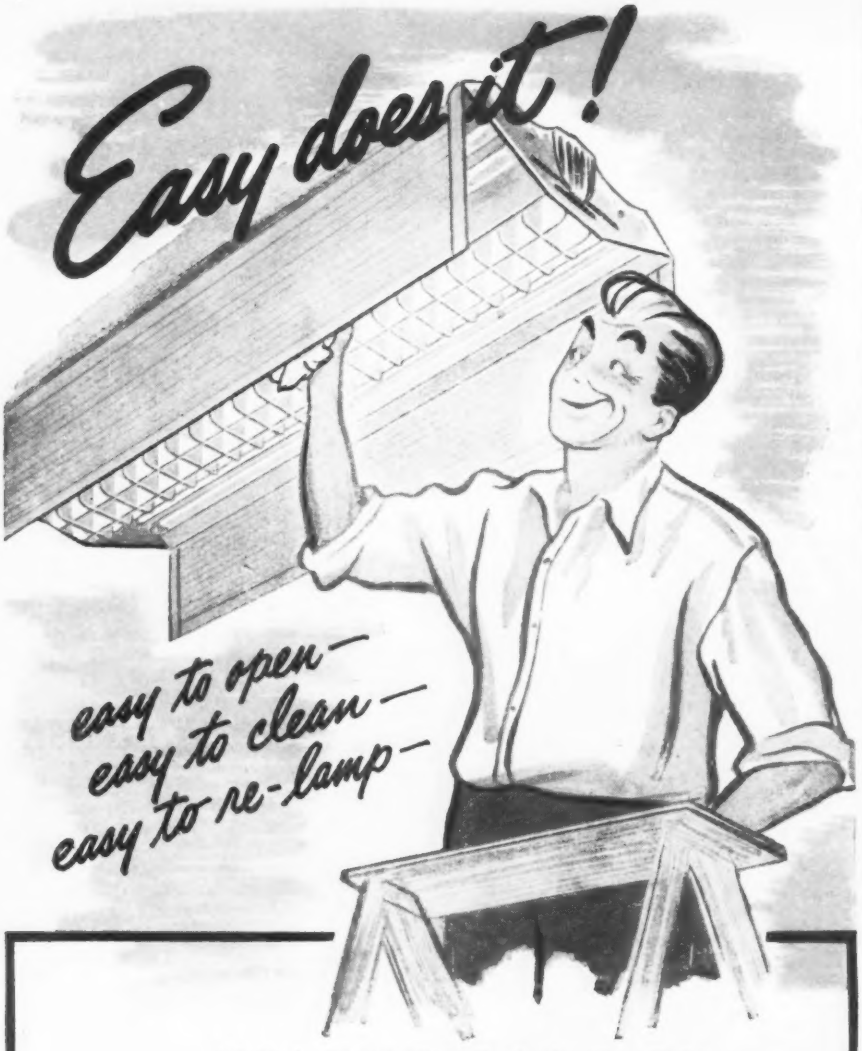
When you want uniformly good results—a fine flawless finish... no streaks or blemishes—(and that's *all the time!*)—you can get them with Diastafor—Type L. It will give the same superb performance whether you are working with cottons, rayons, or mixed goods.

Whenever Diastafor is used it proves its value over and over again. For 39 years it has been the leader in its field, prized for its economy, ease of operation and fine performance. It's the all-purpose de-sizing agent that keeps trouble at a minimum.

When you have a de-sizing problem that signals "Trouble," please write us. We shall be glad to give you the assistance of our sales and technical staffs. Address Standard Brands Incorporated, *Diastafor Department,* 595 Madison Avenue, New York 22, New York.

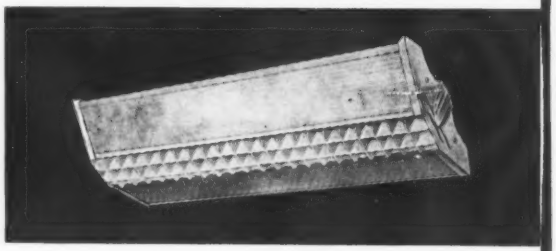
DIASTAFOR

A TRADE MARK OF STANDARD BRANDS INCORPORATED



The VANGUARD

Newest SILV-A-KING Fluorescent Fixture . . . for commercial installations



No more dangerous high-ladder gymnastics . . . no more fancy tools . . . no more lacerated fingers or strong language! The Vanguard opens as easily, quickly, and safely as your fountain pen—for inspection, cleaning, or re-lamping.

For assurance of minimum maintenance time . . . Specify the Vanguard!

I. B. E. W., A. F. of L. • Listed by Underwriters' Laboratories, Inc.

Yours for the asking, "Vanguard" Bulletin No. 447FV

SILV-A-KING LIGHTING EQUIPMENT SINCE 1921

BRIGHT LIGHT REFLECTOR COMPANY, INC.

Subsidiary of Bridgeport Pressed Steel Corp.

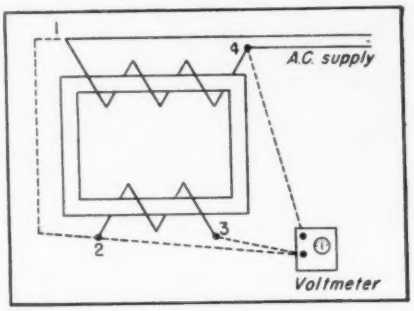
FAIRFIELD AT STATE • BRIDGEPORT 5, CONN.

voltage indicated between points 2 and 4.

Move the voltmeter lead from point 2 to point 3, and read the voltage. If the voltage indicated at this reading is greater than that at point 4, the transformer has additive polarity. If the voltage is less, the polarity is subtractive.

Direct-current test. Connect a source of d.c. power, such as a battery, to the terminals of either primary or secondary winding. Connect a d.c. voltmeter to the same winding. Such a connection will give a forward movement to the voltmeter.

Transfer the voltmeter connections to the other winding and open the battery connection. The inductive kick of the transformer will cause the voltmeter to move up the scale or against the stop. If the needle swings up, as on the first connection, the transformer polarity is additive. If it tends to swing against the stop, the polarity is subtractive.



Transformer polarity can be checked with a voltmeter by comparing the reading obtained at points 2 and 4 with that obtained at points 3 and 4.

Fibers in Cross Section Are Index to Spinnability

Technical Editor:

There is always some discussion as to the number of viscose-rayon fibers the cross section of a yarn should have. We should appreciate an opinion on this subject; and if a formula for figuring the correct number of fibers to the cross section is available, we should like to have that also.

It has been suggested that 88 fibers to the cross section are necessary for a satisfactory yarn. What is your opinion of this number of fibers? (9196)

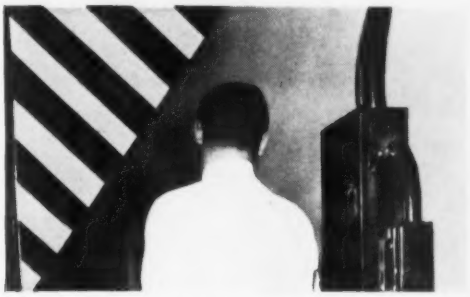
A viscose-rayon yarn spun with 88 fibers to the cross section undoubtedly would be a satisfactory yarn, and you would not be going amiss to adopt that number, particularly for blended yarns. However, the manufacturers of viscose rayon suggest that considerably fewer fibers in the cross section

(*Continued on page 221*)

Du Pont Color Conditioning means

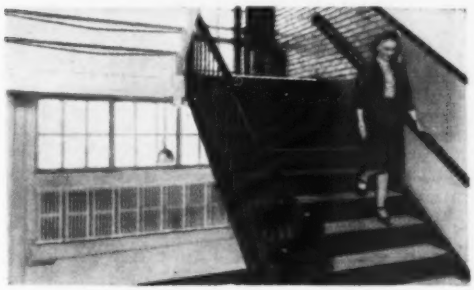
Greater efficiency • Added safety • Higher morale

VISIBILITY. Color conditioning reduces eyestrain and fatigue by reducing glare . . . by providing the correct degree of "brightness" within the worker's field of vision.



SAFETY. Hazardous areas are "pointed up" through the Du Pont Safety Color Code . . . helping prevent costly accidents. Colors and symbols also indicate location of first-aid and fire-protection equipment.

MORALE. A cheerful, pleasant environment gives workers a lift . . . pays off in better work. Color Conditioning in washrooms, cafeterias, etc., helps promote good employee-management relations.



FOR EVERY INTERIOR. Every part of your plant can gain through Color Conditioning. Stairways, offices, corridors, assembly rooms . . . this painting plan imparts an agreeable, efficient atmosphere to every interior.

Shaving cream packing room at the Boston plant of Gillette Safety Razor Company. Here, as elsewhere throughout the plant, Color Conditioning helps employees "look sharp, feel sharp, be sharp"!

MANY industries today are taking advantage of Du Pont Color Conditioning to increase employee efficiency, safety, and morale. This scientific painting plan improves the rate and quality of production, cuts maintenance costs . . . helps workers see better, feel better, work better. Find out how your plant can benefit through Color Conditioning. Send coupon to E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Wilmington 98, Delaware.

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Color Conditioning

BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

Send for free new 32-page book, "Color Conditioning for Industry"

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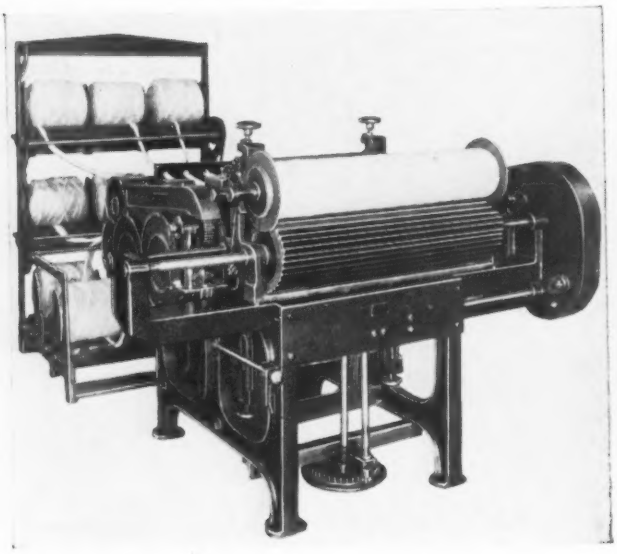
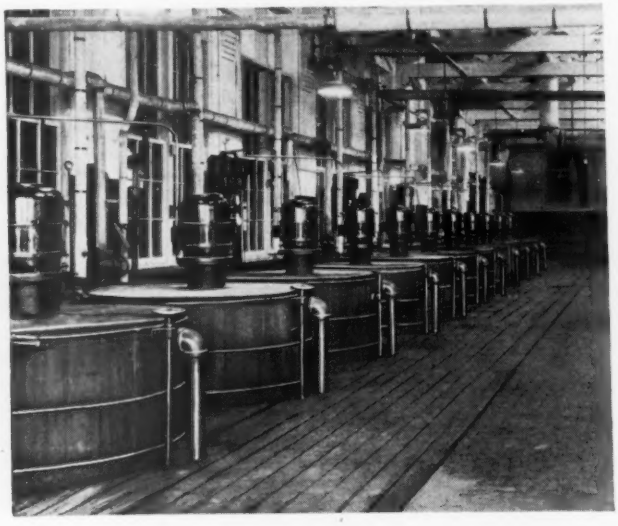
12

ABBOTT
WORSTED TOP DYEING

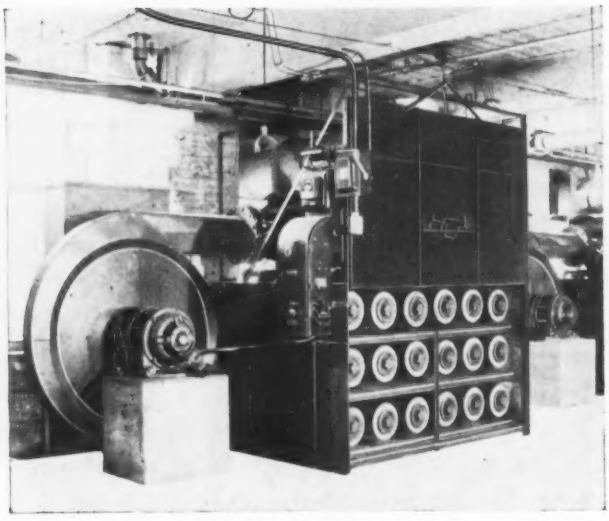
MOST OF THE WORSTED TOP IN THE UNITED STATES
IS DYED ON THE ABBOTT DYEING SYSTEM



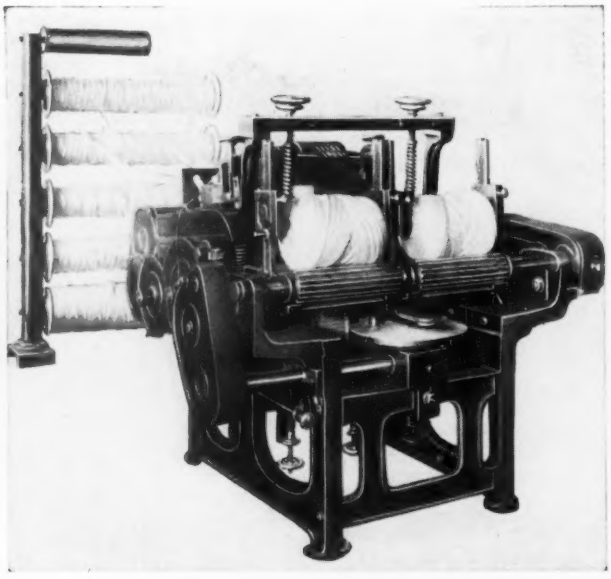
(1) Abbott Dye Spools Wound from Top on Special Spooling Gill



(2) Then, Dyed in Abbott Stainless Steel Dye Kettles



(3) and Dried in Abbott 18-spool Dryer



(4) Then, wound from Dye Spools on the Finishing Gill

No Backwashing or Recombing Required

ABBOTT MACHINE COMPANY
WILTON, NEW HAMPSHIRE
U.S.A.

of 100% viscose-rayon yarn will also produce a satisfactory product.

There is no standard number of fibers in yarns produced by mills spinning rayon yarns because the differences in the spinning machinery make such standardization impracticable. Many mills are spinning 80s yarn from 1½-in., 1.0-den. viscose rayon and 50s yarn from 1½-in., 1.5-den. The yarns produced in these instances contain about 70 fibers to the cross section.

The following formula for determining the number of fibers can be used:

Constant ÷ (Yarn No. x Average denier).

In this formula, the constant is 5,315 (the number of deniers that is equivalent to 1s cotton yarn). If a 30s yarn is to be spun from 1.5-den. viscose rayon, the determination of the number of fibers in the cross section would be:

5,315 ÷ (30 x 1.5) = 118 fibers.

The indication is that such a yarn should perform very satisfactorily in the spinning process. With good spinning machinery, however, it should not be necessary to have anything near 118 fibers in the cross section. The best procedure for any mill would be to experiment, within reasonable limits, in order to establish the relationship between fiber denier and yarn count that produces the best yarn on its equipment.

If you decide to operate with approximately 88 fibers to the cross section, you can simplify the formula given by dividing it by 88, as 5,315 ÷ 88 = 60. The practical value of this figure is that it indicates your minimum limit of Yarn No. x Average denier for good spinning qualities. As long as Yarn No. x Average denier is not below 60, the yarn under consideration can be successfully spun from the denier of fibers under consideration.

Thus, if you were considering spinning 3.0-den. fibers, you would know not to spin a yarn finer than 20s, since to do so would cause the product of Yarn No. x Average denier to exceed 60. In such a case, you would be spinning fewer than 88 fibers to the cross section of the yarn. Likewise, with 1.5-den. fibers, you would know at once that you could spin up to 40s successfully but should not exceed 40s.

The viscose-rayon manufacturers recommend that for 100% viscose yarns a constant of 75 (about 71 fibers in the cross section) can be used. This constant would indicate that 1.0-den. fibers could be spun into 75s yarn, 1.5-den. into 50s, and 3.0-den. into 24s.

CLARK *Electric Fork Trucks cost less!*

. . BECAUSE OF ECONOMIES RESULTING FROM MASS PRODUCTION OF MAJOR UNITS IN CLARK'S OWN PLANTS—ASSEMBLY-LINE PRODUCTION OF FORK TRUCKS, BOTH ELECTRIC AND GAS-POWERED—MAXIMUM INTERCHANGEABILITY BETWEEN GAS AND ELECTRIC MACHINES OF LIFT MECHANISMS, AXLES, WHEELS AND MANY OTHER PARTS.

TRUCLOADER—CAPACITY 1,000 lbs.

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CLIPPER—CAPACITY 2,000 lbs.

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. . . BECAUSE THEIR INITIAL COST IS LOW—THEIR OPERATING COST IS LOW—THEIR MAINTENANCE COST IS LOW—THEY CONSUME LESS POWER AND DO MORE WORK BEFORE RECHARGING IS NECESSARY . . . AND BECAUSE OF THEIR EASE OF OPERATION, MOST OPERATORS PREFER THEM.

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FORK TRUCKS

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CLARK EQUIPMENT COMPANY

TRUCTRACTOR DIVISION, BATTLE CREEK, MICHIGAN

OTHER PLANTS—BUCHANAN, JACKSON, BERRIEN SPRINGS, MICHIGAN

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ONYXSAN LG has all the outstanding properties which have made the Onyxsan Series of cation-active softening agents so valuable, plus the ability to provide unusually attractive, smooth, drapable hands. It is further distinguished by the exceptional resistance to washing exhibited by the finishes it gives. On cotton, rayon and bemberg this finish is permanent.

Like the other Onyxsans, the action of Onyxsan LG is to effect a characteristic change *within* the yarn itself, instead of applying a superficial surface effect such as obtained by lubricants.

If you are interested in obtaining a wide variety of durable hands on your materials, the economy and versatility of Onyxsan LG call for investigation and trial.

- Substantive to all textile fibers.
- Small quantities produce its characteristic effects.
- Stable to hard water, chlorides, sulphates and organic acids.
- Easy to apply in the jig, pad, quetsch, dye beck, etc.
- No odor, rancidity, stiffness or mark-off.

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In Canada: Onyx Oil & Chemical Co., Ltd. Montreal, Toronto, St. Johns, Que.

For Export: Onyx International Jersey City 2, N. J.

onyx CHEMICALS FOR DYEING AND FINISHING

Molten Metal Dyeing

(*Continued from page 133*)

60 g. sodium salt of the tetra-sulfuric-acid ester of leuco-3.3′-dichloro-N-dihydro-1.3.2′.1′-anthraquinon-eazine
50 g. thiodiglycol
300 g. water
500 g. starch-tragacanth thickening
40 g. 50% aqueous solution of ammonium rhodanide
30 g. sodium-chlorate solution (30%)
10 g. 1% solution of ammonium vanadate
10 g. ammonia solution (25%)

1000 g.

Directly after printing, the moist goods are passed for 6 sec. at 145° C. through the same metal bath as in example 1. Subsequently, the goods are rinsed and soaped at the boil. A vivid and fast blue print is obtained.

3. A cotton fabric is printed with the following printing paste:

100 g. 20% paste of dyestuff No. 1220 (Schultz l.c.)
300 g. water
600 g. carob-seed-meal thickening (20:1000)

1000 g.

After drying, the fabric is padded on the padder with the following solution:

50 g. caustic-soda solution (38° Be)
60 g. sodium hydrosulphite
100 g. anhydrous Glauber's salt

After squeezing (100% absorption of liquid), the moist goods are passed for 10 sec. at 130° C. through a metal bath of the composition indicated in example 1, are subsequently rinsed thoroughly, oxidized with very diluted hydrogen-peroxide solution and soaped at the boil. A vivid and fast blue print is obtained.

4. A fabric of viscose rayon is printed with the following printing paste:

40 g. mixture of 1-(2′.3′-hydroxynaphthoylamino)-naphthalene and the diazoamino compound of diazotized 1-amino-4-benzoyl-amino-2:5:-diethoxybenzene and sarcosine
50 g. glycol mono-ethylether
120 g. diethylaminoethanol
190 g. water
600 g. neutral starch-tragacanth thickening

1000 g.

Directly after printing, the moist goods are passed through a metal bath which has the composition indicated in example 1 and which has been heated to 120° C. The time of passage amounts to 10 sec. The material is then rinsed and soaped at the boil. A full navy blue print, fast to washing, is obtained.

5. A fabric of viscose rayon staple fiber

(*Continued on page 226*)

The quality of the stockings you produce is determined by your selection of the needles. At Royersford needle-making is a treasured craft developed over three generations. Modern manufacturing techniques maintain absolute uniformity in every Royersford Needle. Remember this skill and experience the next time you order needles.

ROYERSFORD NEEDLE WORKS, INC., Royersford, Pa.
Makers of a complete line of Full-Fashioned specialties.

Hands of experience

Royersford

—the Master Needle Maker

THE CLIP GOES TO MARKET FROM A TEXAS RANCH
Photo by Harry Pennington, Jr.

baa-baa, black sheep have you any wool?

IN TEXAS? The state produces 80,000,000 pounds of wool per year. That's about 25% of the national production. Texas has, literally, more sheep than people.

Texas' wool production is one of the reasons why the textile industry will find it advantageous to build its new plants in the Texas Coast Country.

Another is the fact that Texas produces 20% of U. S. Cotton. And another—Texas produces 90% of U. S. Mohair. And another—Texas has 58% of the proven natural gas reserves in the U. S., raw material for an expanding synthetics development and an unsurpassed industrial fuel.

Markets? Remember that the garment industry is moving southwestward. Markets in other parts of the United States and in Spanish America are available via deep-water shipping, inland waterways and five major rail systems.

These advantages are measureable in terms of reduced operating expenses. Make *your* new mill competitive—build it on the Texas Coast.

Let us tell you about Texas' Textile Possibilities

Come down to visit us, or write us for specific information on the Texas Coast Country's advantages for your plant. Your request will be kept in confidence. Address Research Department, Houston Pipe Line Company, Houston, Texas.

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Subsidiary of Houston Oil Company of Texas
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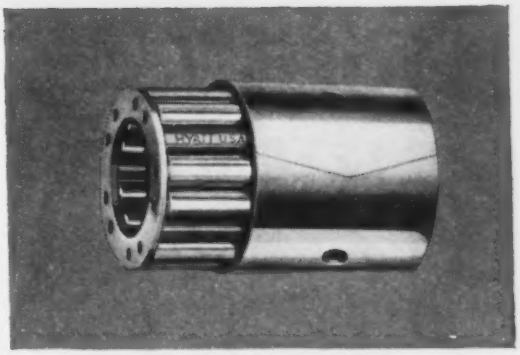
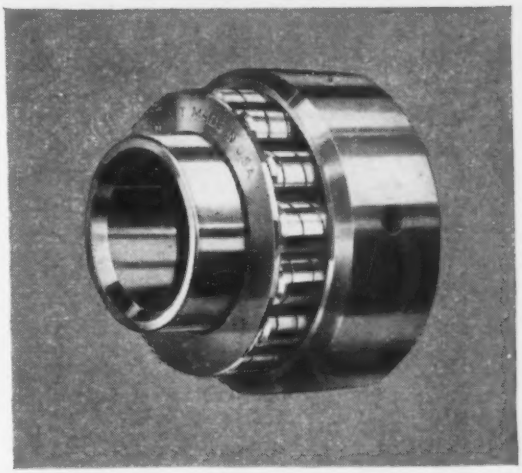
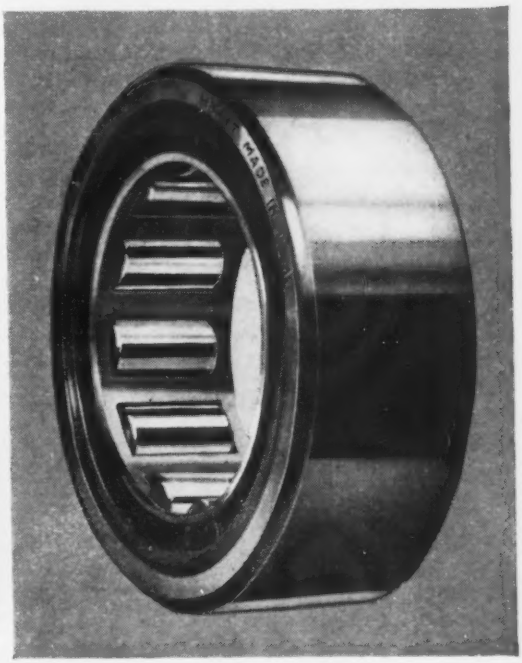
DESIGNED RIGHT—BUILT RIGHT

—to do their job right







For more than fifty years Hyatt Roller Bearings have been so designed and built that machine designers and manufacturers know, from experience, they can rely on them. Wherever wheels or shafts turn—under light or heavy loads—at high or low speeds—in all types of textile machinery, there is a Hyatt Roller Bearing which can be profitably installed.

Whether you are a builder or operator of textile machinery, ask one of our field engineers to cooperate with you in solving your bearing problems. There is no obligation. Merely write or phone us. Hyatt Bearings Division, General Motors Corporation, Harrison, N. J.

HYATT

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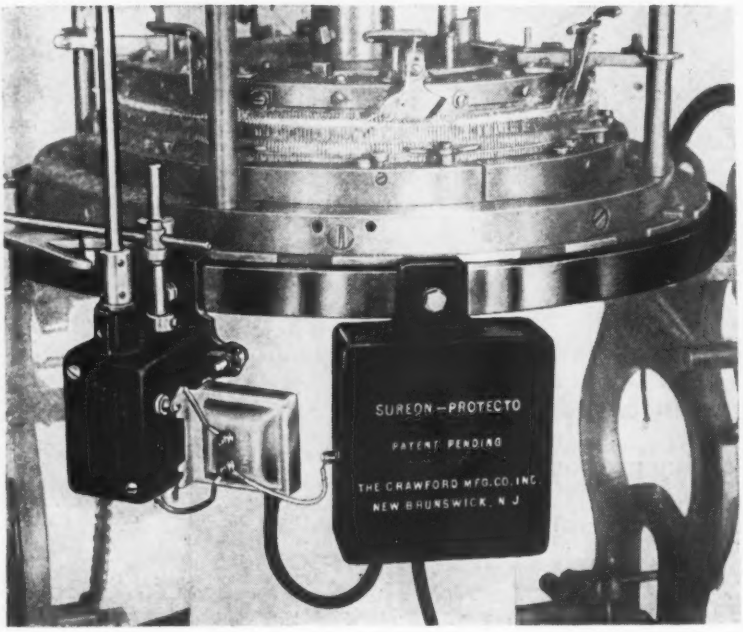
Your machines with Crawford's Sure-Stop

SUREON-PROTECTO BOX



As a user of Electric Stopmotions on your knitting machines, you have undoubtedly noticed that the knitting machine continues to run when the current supplying the stopmotion is discontinued. For full protection, the machine should be stopped.

The CRAWFORD SUREON-PROTECTO BOX has been designed to protect the knitting machine when the current goes off. If a fuse blows on the lighting line, or if the plug which is attached to the stopmotion is accidentally pulled out of the socket, the Sureon-Protecto Box will instantaneously and automatically stop the knitting machine. This prevents serious smash-ups. This box can easily be attached to Electric Stopmotions already in your mill, and may be ordered when placing new orders for stopmotions directly with us or with the machine builders.

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PENNA. REPRESENTATIVE
JACK FORSTADT
623 Drexel Building
Philadelphia, Penna.
Tel.: BELL: Lombard 5663
Keystone: Main 3956

(Continued from page 222)

is padded with the following solution:

8 g. substantive dyestuff No. 412 (Schultz 1.c.) dissolved in
892 g. water
50 g. glycerol and
50 g. Glauber's salt added

1000 g.

After squeezing, the fabric is passed for 40 sec. at 105° C. through the following metal bath heated to 105° C.:

300 g. bismuth
500 g. tin
300 g. lead

rinsed subsequently and dried. A fast brown dyeing is obtained.

6. A viscose rayon-staple fabric is padded with the following solution:

200 g. dimethylol urea
785 g. water
15 g. ammonium nitrate

1000 g.

The material is then squeezed, dried and passed through a metal bath heated to 160° C. and having the composition indicated in example 1. The time of passage amounts to 20 sec. The goods are resistant to creasing.

7. A fabric of bleached cotton is printed with the following printing paste:

100 g. 50% solution in butanol of a water-soluble precondensate of urea, formaldehyde, and butanol are mixed with
150 g. 50% solution of a modified glyptal resin (from linoleic fatty acid, phtalic acid and glycerol) in zylene and
200 g. zylene

450 g.

Into this mixture there are introduced, while stirring with a rapid stirrer,

100 g. 20% paste of the blue obtainable according to example 2 British patent 453,767, diluted with
30 g. ammonia solution (25%) and
420 g. water

so that a uniform emulsion is obtained.

The printed goods are dried and, for 30 sec., passed through a metal bath having the composition indicated in example 1 and heated to 150° C. whereby the blue print is fixed so as to be fast to washing without further treatment.

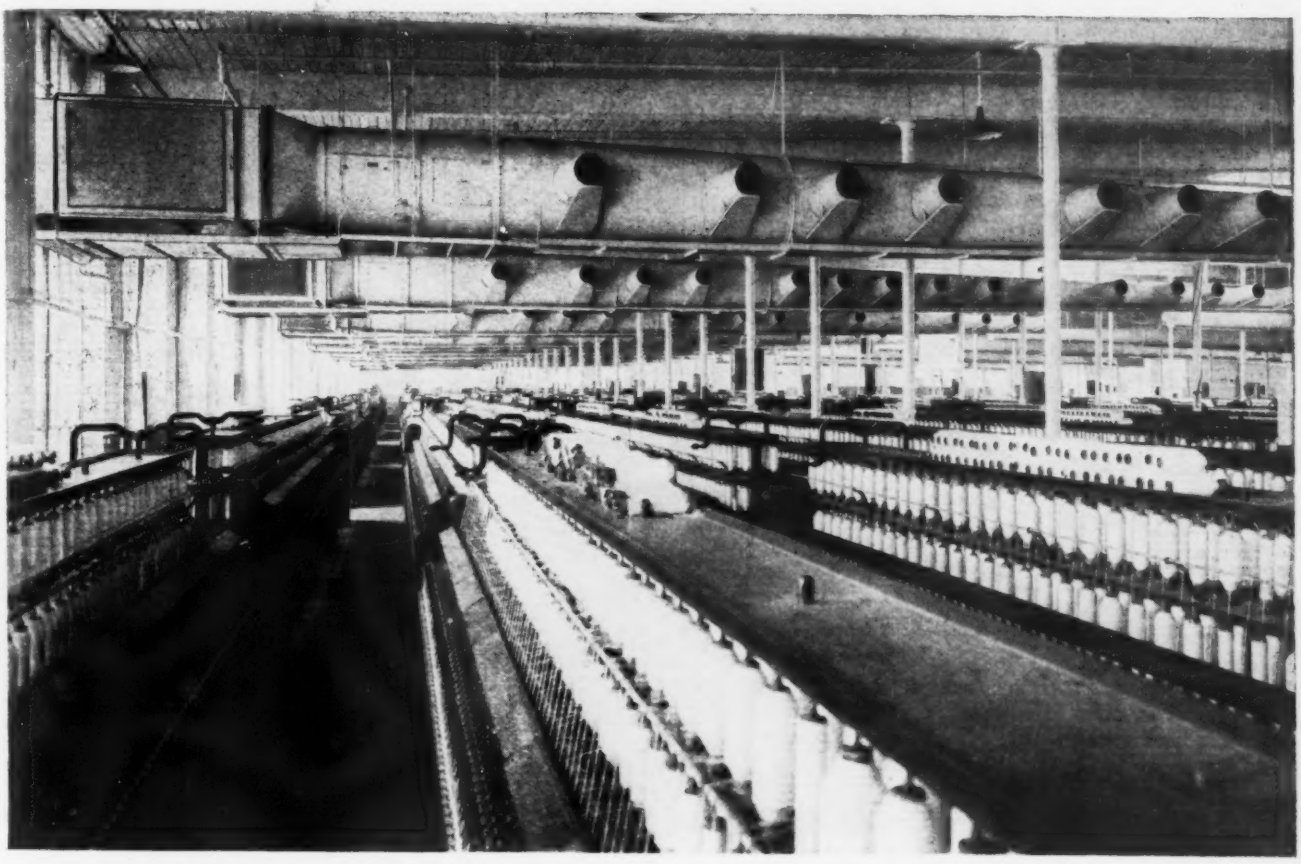
8. A fabric of viscose-rayon staple is impregnated with the following liquor:

25 parts by weight of n-octadecyl N.N'-ethylene urea
1 part by weight of fatty-alcohol sulfonate
974 parts by weight of water

1000 parts by weight

After squeezing, the fabric is passed through the bath mentioned in example 1 at 140° C. with such a speed that it leaves the bath in a perfectly dry state. The time of passage amounts to 12 sec. After this treatment, the fabric is water-repellent.

TEXTILE *Air Conditioning-*



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The Bahnson HUMIDUCT

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A unit system of air conditioning for humidifying, cooling, heating, ventilating, filtering and dehumidifying in any desired combination.

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AIR CONDITIONING ENGINEERS

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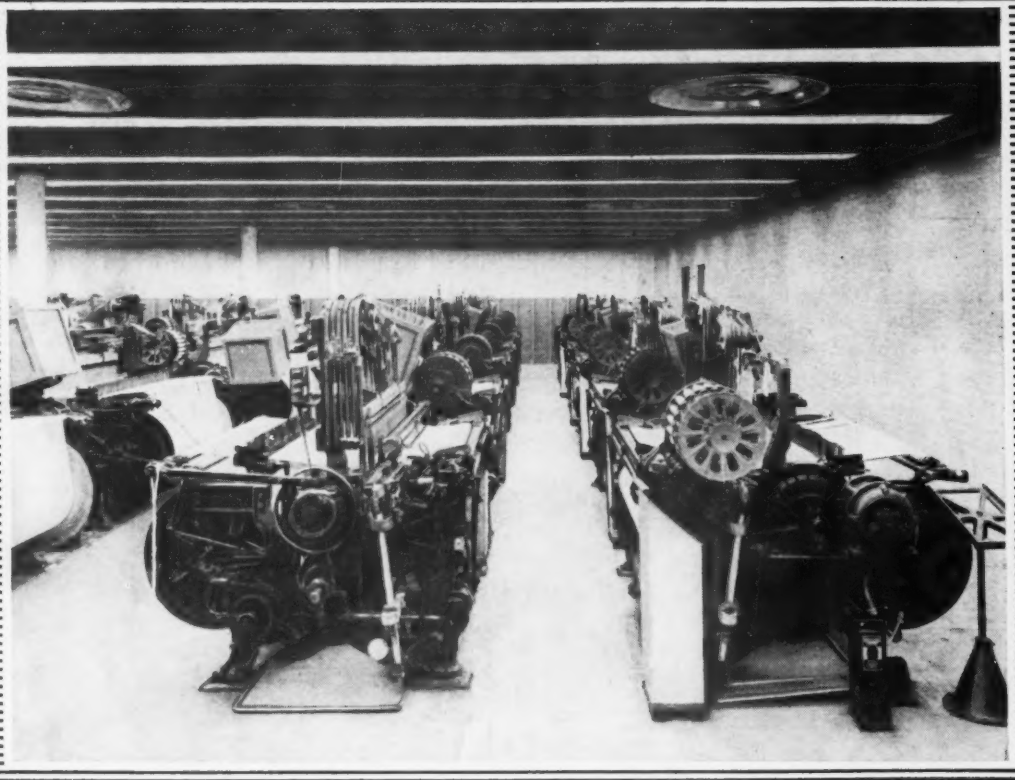

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The Macon Textile Mills, Macon, Ga., kept down building costs by keeping ceilings down. This was easy with Carrier air conditioning.

This modern, scientific air conditioning provides ample ventilation the year round. It controls temperature and humidity regardless of season or outdoor weather. The need for high ceilings in the mill no longer exists. And, naturally, low ceilings permit lower over-all height for the building, cut construction costs.

The economy of Carrier air conditioning goes right on after the building is finished. Its precise control of atmospheric conditions speeds up production and improves quality throughout the mill. It reduces the amount of "fly" and keeps static at a minimum. It cuts spoilage and rejects. And it boosts output because employees work more efficiently when the temperature is healthful.

Carrier air conditioning is the outgrowth of long leadership in the field. Carrier engineers, working closely with textile men, have pared costs and improved quality for scores of textile mills here and abroad. They are always glad to discuss new and difficult production problems. Why not ask their help? Carrier Corporation, Syracuse, N. Y.

Carrier

air conditioning

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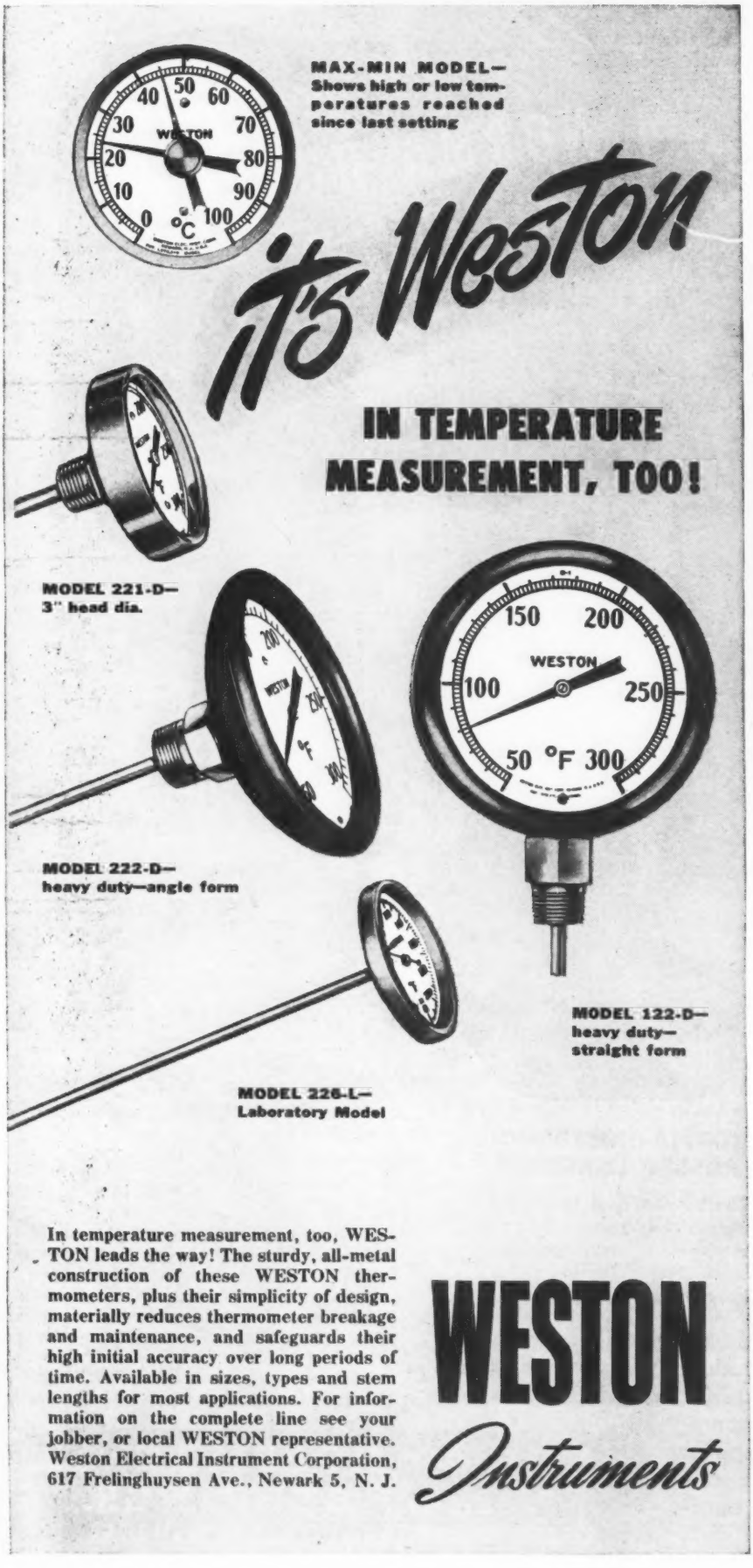
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ROCHESTER · SAN FRANCISCO · SEATTLE · ST. LOUIS · SYRACUSE · IN CANADA, NORTHERN ELECTRIC CO., LTD., POWERLITE DEVICES, LTD.

New Printing Emulsions

(*Continued from page 143*)

1. The clear and the Varsol No. 2 are mixed as previously described.
2. The Pharmasol Red GNBS and the water are mixed with a paddle and then added to the clear and solvent with high-speed mixer as described.

A typical formula for producing an emulsion with a Rapidogen color is as follows:

Clear 6214	8 parts by weight
Varsol No. 2	22 parts by weight
Rapidogen Red G—stock solution	20 parts by weight
Water	50 parts by weight
Total	100 parts by weight

The formula for the Rapidogen Red GS stock solution is as follows:

Rapidogen Red GS	15 parts by weight
Caustic soda 35%	12 parts by weight
Cellosolve	10 parts by weight
Water	63 parts by weight
Total	100 parts by weight

The stock solution is prepared by pasting the Rapidogen Red GS with the Cellosolve, adding the caustic soda and water, and stirring with a paddle. The procedure for making the finished color emulsion is the same as described for Pharmasol colors, the only difference being that the Rapidogen Red GS stock solution is substitute for the Pharmasol Red GNBS.

The formulas and procedures for the Diagen colors are exactly the same as for the Rapidogens.

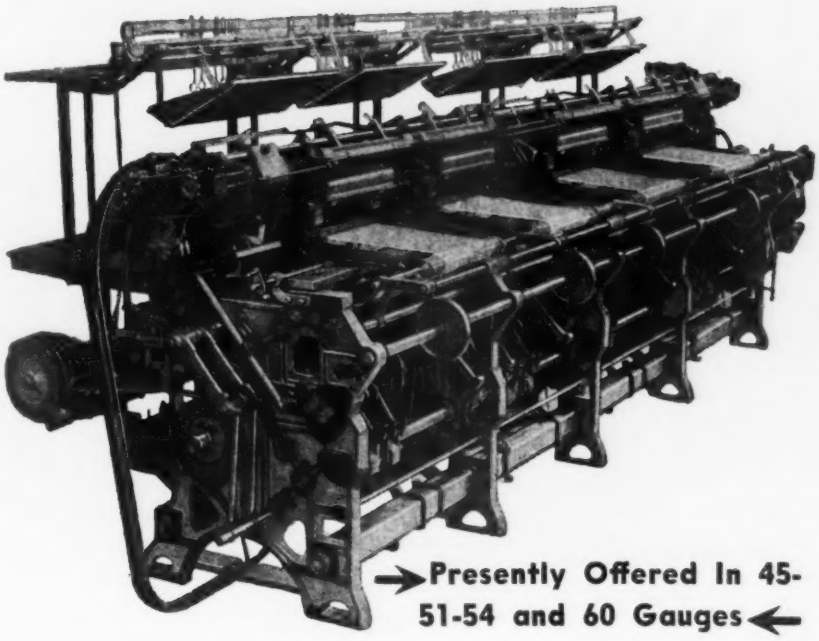
PRINTING. In printing with this type emulsion, somewhat shallower engravings than usual can be employed. If engravings of normal depth are used, the addition of a small amount of starch or textile gum to the dyestuff solution may be found desirable in order to prevent flushing of color. Printing is carried out in the usual manner on a roller-printing machine or with screen-printing equipment, after which the fabric is dried and acid aged. Soaping is unnecessary, thereby eliminating one operation.

Use of such an emulsion for printing azoic colors results in sharper, brighter prints than are obtained by conventional methods. An important advantage is that in printing delicate fabrics, such as Bemberg sheers, there is virtually no danger of cracking the fabrics as is likely to occur when starch or gum pastes are employed. Because there is no surplus dye on the surface of the fabric, there is no bleeding of the color into white grounds when table cloths, towels, or other materials printed with azoic colors are washed by the consumer. Likewise, there is no bleeding of the colors if the printed fabrics are treated with caustic soda to produce plisse effects.

(*Continued on page 234*)

Presenting the New

REINER
FOUR SECTION FULL FASHIONED HOSIERY TWIN KNITTER (Model TK-2)



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Since 1922 the Einsiedel Reiner full fashioned hosiery machines have been among the leaders in their field. In addition Reiner Auto Heelers are widely used to knit French heels in conjunction with leggers or single unit machines.

Please write to us for additional details.

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- To be operated by unskilled help
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MODERN, high efficiency electronic precipitation plus the safety factor of dependable mechanical air filtration—you get both in the Electro-Airmat to insure "around the clock" protection against dust infiltration.

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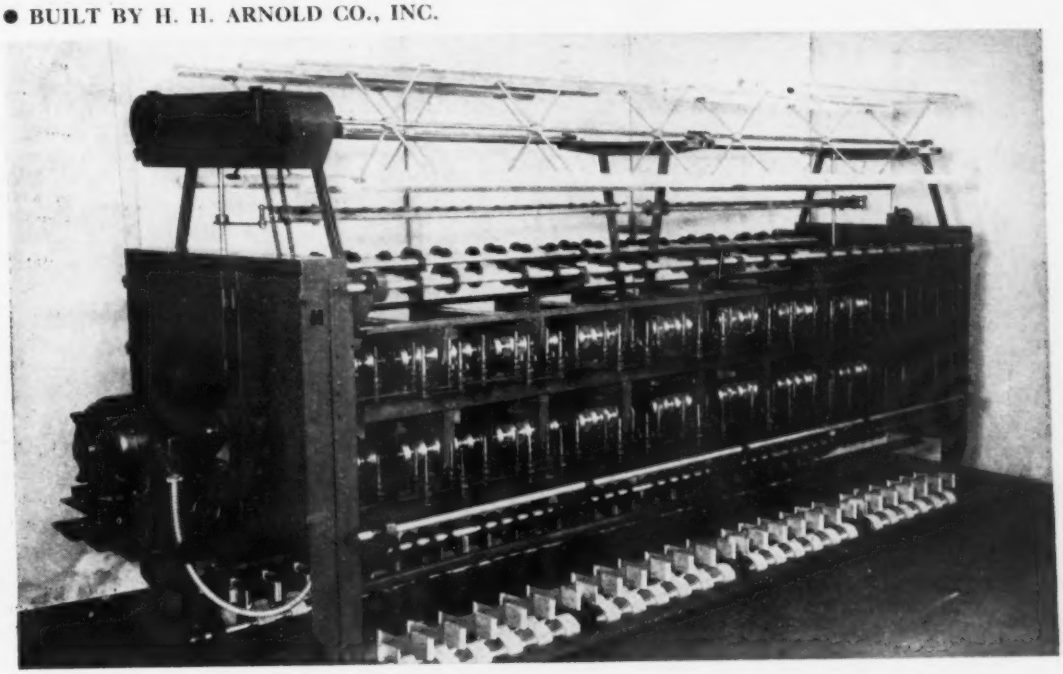

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With a Single Purpose!

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PALLETIER
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(*Continued from page 230*)

CHROME COLORS. A typical formula with a chrome color is as follows:

Clear 6214	8 parts by weight
Varsol No. 2	22 parts by weight
Chromocitronine R Solution	64 parts by weight
Chromium Acetate 10°Tw.	6 parts by weight
Total	100 parts by weight

The procedure is as follows:

1. The clear and Varsol No. 2 are mixed as described under "Emulsion Preparation."
2. The Chromocitronine R solution is prepared by dissolving 2 parts of the color and ½ part of the urea in 61½ parts of water. It is then added to the clear and solvent with high-speed mixing as described above.
3. The chromium-acetate solution is then added.

After printing, the fabric is dried, steamed at 3-lb. pressure, and washed.

Such emulsions have proved particularly advantageous for the blotch printing of drapery fabrics with chrome colors. The chief advantages for this application are:

1. The evenness of the blotch with no scabbiness as frequently occurs on rough textures when starch and gums are employed for the printing thickener.
2. The desirable soft hand obtained.
3. The possibility of using shallower engravings than are necessary when starch and gums are used.

DIRECT COLORS. A typical formula with a direct color is as follows:

Clear	8 parts by weight
Varsol No. 2	22 parts by weight
Diamine Scarlet B Solution	70 parts by weight
Total	100 parts by weight

The procedure for the emulsion is as follows:

1. The clear and the Varsol No. 2 are mixed as described under "Preparation of Emulsion."
2. The Diamine Scarlet B is prepared by dissolving 2 parts of the color and 20 parts of urea in 48 parts of water, and is then added to the clear and solvent with high-speed mixing.

After printing, the fabric is dried, steamed, and washed.

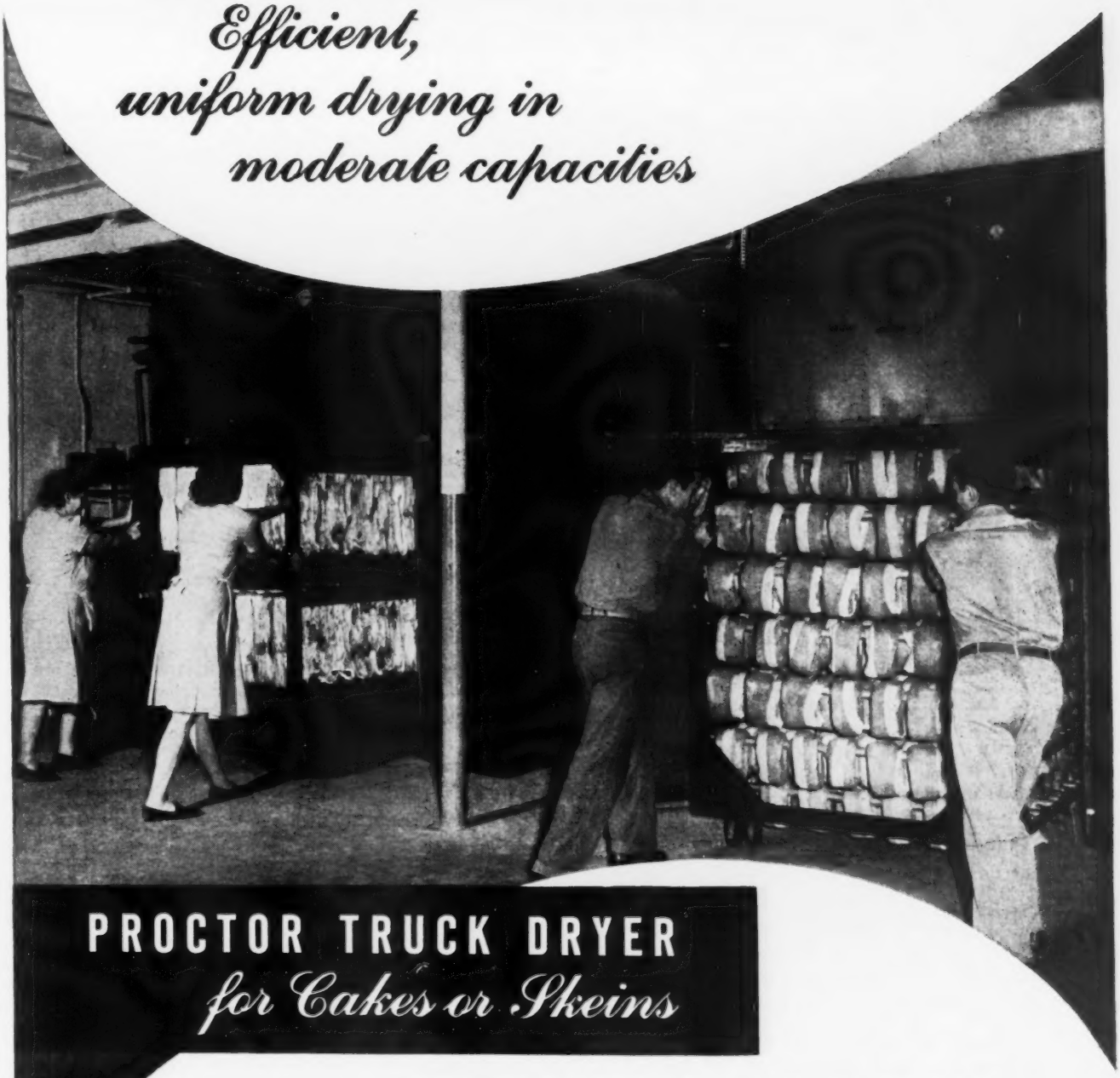
Such a formulation has proved particularly advantageous for blotch printing with direct colors on Bemberg rayon.

Two of the principal advantages of the emulsion are: (1) the evenness of the blotch, which resembles a dyed ground in appearance, and (2) the elimination of any cracking of the fabric as is likely to occur when conventional printing gums are used and the fabric is dried at a high temperature. Another advantage is that the colors are brighter and lack the mottled appearance often caused by printing gums. Also, this type emulsion provides excellent penetration, eliminates siding or shading, and permits the use of shallower engravings.

BLACKS. Still another advantage is

(*Continued on page 236*)

Efficient, uniform drying in moderate capacities



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Accepted for years as a highly efficient dryer for rayon skeins, the Proctor truck dryer has been adapted recently for drying processed rayon cakes. It is especially applicable for capacities ranging from 400 to 2,000 pounds of cakes or skeins per day. With these dryers in operation, it is possible for the throwing mill to dry cakes and skeins interchangeably in the same machine—or in larger machines with two or more trucks—at the same time, for there is a difference in the way in which trucks must be loaded for each. Skeins or cakes are hung on poles which rest on supports along the sides of the truck, as can be seen from the photograph. Poles are spaced in a staggered manner when the truck is being used for cakes. When it is to be used for skeins, intermediate pole supports are not used, and the top and middle supports are reversed, providing the proper spacing for skeins. The smaller dryers accommodate one or two trucks at a time and may be provided with doors at one end or both ends, depending upon individual requirements. The machine has a proven record for uniformity of drying, high efficiency, low steam consumption and low power requirements. It is proving to be the answer to the need of the throwing mill with a moderate output of either skeins or cakes. You'll find it well worth your while to investigate the details of this modern Proctor equipment. Write today.

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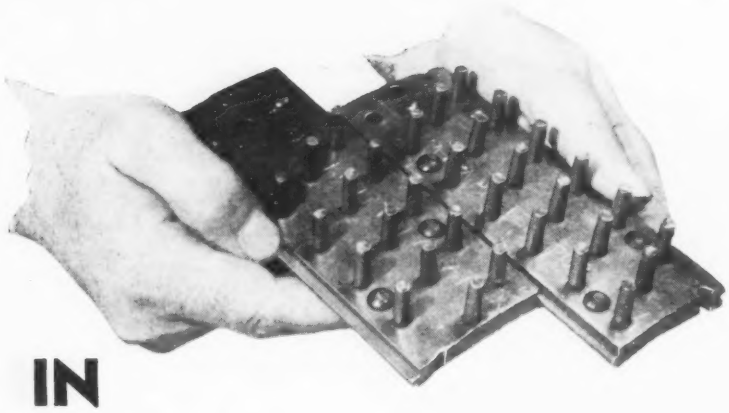

IN

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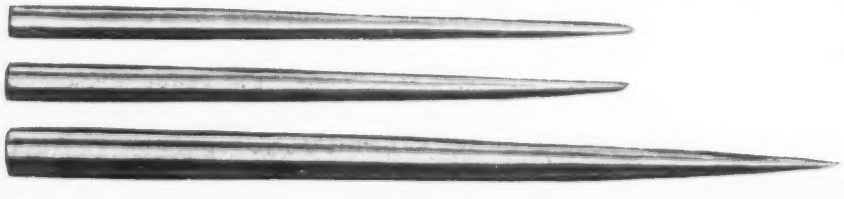

(*Continued from page 234*)

evident in the printing of black fall-ons. When printing with gums, the black fall-on roller must be placed in the number one position in order to obtain the desired sharp mark. This positioning makes it difficult to keep the pattern in register. Also, with the black fall-on roller in the number one position, there always is a danger of dirtying the following colors. By using a water-in-oil emulsion, the printer can place the black fall-on roller last, and still obtain a sharp mark, better registration, and clean colors throughout a run.

ADEQUATE VENTILATION. In printing with the emulsions, positive ventilation should be provided at the dryer in the amount of 10,000 cubic feet of air for every gallon of solvent used. To provide this ventilation, a fan of sufficient size should be installed to draw from a hood over the dry cans. The fan should be placed outside the duct and should be equipped with an interlock so that the printing machine cannot be run unless the ventilation fan is also running. The fan should not stop when the printing machine and cans stop, but continue to operate, thus removing solvent fumes from the hood.

[1] These emulsions are marketed by the Textile Colors Division of Interchemical Corp. under registered trademark "Aquadye." Interchemical Corp., Textile Colors Div., is the owner of certain patents covering the type of emulsions known as Aquadye emulsions and the processes for applying them to textiles, under which it licenses textile finishers to use such patented processes and to make or have made for them for use in their plants the compositions claimed in the licensed patents. Under the license arrangement, a licensee agrees to pay InterChemical Corp. a royalty equal to 6% of the cost of the compositions used by the licensee under the license. However, the costs of water-soluble dyestuffs, developing agents, printing assistants, and volatile solvents, when purchased as such by a licensee and not as ingredients of other compositions, are excluded from "the cost of compositions used by the licensee under the license." In most instances, therefore, the cost of the compositions on which a royalty is payable is the cost of the concentrated clear only.

[2] A commonly used mixer is the Eppenbach Homo-mixer made by Eppenbach, Inc., Long Island City, New York. A 1-hp. mixer has a capacity of 100 to 150 gal. per hour, or two to three batches.

[3] Bemberg is the registered trade mark of the American Bemberg Corp. for its cuprammonium-process rayon.

Circular Knitting

(*Continued from page 167*)

In Fig. 2, one can see better what is happening. In this form of presentation, the digits represent the widths: 1 to 5 is the full turn of the pattern wheel; there are 5 columns of widths, and, at the right-hand side, are 3 columns of the remainder.

As the remainder is 3 widths, above the first width there is the fourth,

(*Continued on page 139*)

HOW WOULD YOU PRINT THIS PATTERN ON BEMBERG SHEER?

Executives of Supreme Textile Printers, Inc., knew that in printing Bemberg sheers by conventional methods there is always the danger of cracking the fabric. Therefore, to produce this gay, sporting design, they decided to use one of the new low-crock Aridye* Pigment Colors. Here's how they did it.

The fabric was first dyed a chartreuse shade and overprinted with Aridye Black FK 4214 cut 1:1 with Aridye Clear 6130. Then the fabric was merely dried and cured for 3 minutes at 300°F. No ageing, soaping, or other after-treatment was necessary.

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(Continued from page 236)
followed by second, fifth, and third which is the end of the repeat. By drawing a line around this repeat, it is shown to be a rectangle and in the next column on the right there is another rectangle raised up 3 courses. The spiral effect is in the line a. There is also a second spiral effect in the line b at a different angle which shows the drop of the rectangles. In analyzing the relation, consider only the rise.

TO DRAFT A PATTERN. Before one can establish the actual pattern area for the purpose of drafting the pattern, it is necessary to choose the number of needles, N, in the machine and the number of divisions in the pattern wheel, P.

Let N = 414 and P = 90. The pattern wheel has 5 widths and the size of 1 width (w) would be 90 ÷ 5, which gives 18 divisions. Further, the number of needles divided by the size of one width gives 23 which agrees with the number of widths in the drawing of Fig. 1 (414 ÷ 18 = 23). The pattern wheel and the number of needles are both divisible by the size of the width without a remainder. This is of great importance. When expressing the number of needles, the pattern wheel, and the width in their prime factors one sees that:

$N = 414 = 2 \times 3 \times 3 \times 23$
$P = 90 = 2 \times 3 \times 3 \times 5$
$w = 18 = 2 \times 3 \times 3$

The prime numbers $2 \times 3 \times 3$ are common to N, P, and w; and $2 \times 3 \times 3 = 18$, which is the greatest common factor to N, P, and w. Knowing this fundamental relation of N, P, and w, one is able to find w from N and P, or w and P from N.

The values established above can be used in the number-of-needles equation to test their correctness. This equation follows:

$$N = P \times t + m \times w.$$

When
Number of needles in the machine $N = 414$
Number of divisions on the pattern wheel $P = 90$
Number of full turns of the pattern wheel $t = 4$
Then
The remainder $m = 3$.

$414 = (90 \times 4) + (3 \times 18)$ or $(360 + 54)$

The pattern area width $w = 18$

The pattern area ($P = 90$) consists of the width ($w = 18$), and depth ($d = 5$). $P = w \times d$, or $90 = 18 \times 5$

PATTERN AREA. Fig. 3 is the actual pattern area. Each width is placed on the top of the previous width in a definite order. The remainder is three widths, as can be seen in Figs. 1 and 2. The width which follows on the

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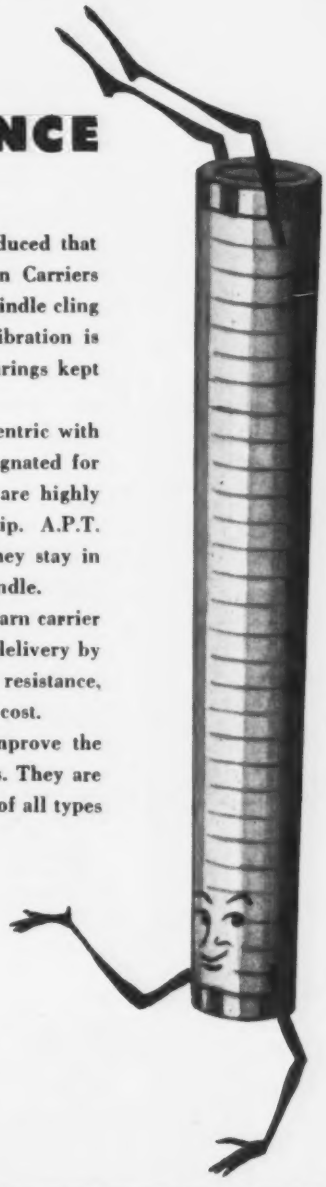

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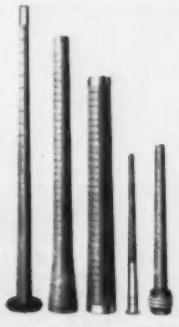

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top of the first width is found by adding the remainder number. After the first one, therefore, comes the fourth and after the fourth there should be the seventh; but, as there are only 5 widths, deduct 5 from 7 and get 2. After the second width, there is the fifth and after this there is the 8 − 5 width, which is 3. To write this in another way:

$$\begin{aligned} 1 + 4m - 2 \times 5 &= 3 \\ 1 + 3m - 1 \times 5 &= 5 \\ 1 + 2m - 1 \times 5 &= 2 \\ 1 + 1m &= 4 \\ 1 &= 1 \end{aligned}$$

Taking the second line above, one can deduce a general formula for finding the rise, r. In the expression, $1 + 3m - 1 \times 5 = 5$, in place of the 5, which is the depth of the area, put d; for 3, the coefficient of m, which is the actual rise, put r; For the coefficient of 5, which is 1, put y which is any number to balance the equation. Then

$$1 + rm - yd = d$$

This equation can be solved for the rise, r, and for the remainder, m, as follows:

$$r = \frac{d(y+1) - 1}{m}$$

$$m = \frac{d(y+1) - 1}{r}$$

These two equations express the relation of depth, remainder, and rise of any pattern area which has a rectangular form. One can test this equation on the example and get the rise without looking at Fig. 2.

$$r = \frac{5(y+1) - 1}{3}$$

By letting $y = 1$, the rise,

$$r = \frac{5[(2) - 1]}{3}, \text{ or } 3.$$

Now there are three equations which express the pattern area relation:

$$N = P \times t + m \times w$$

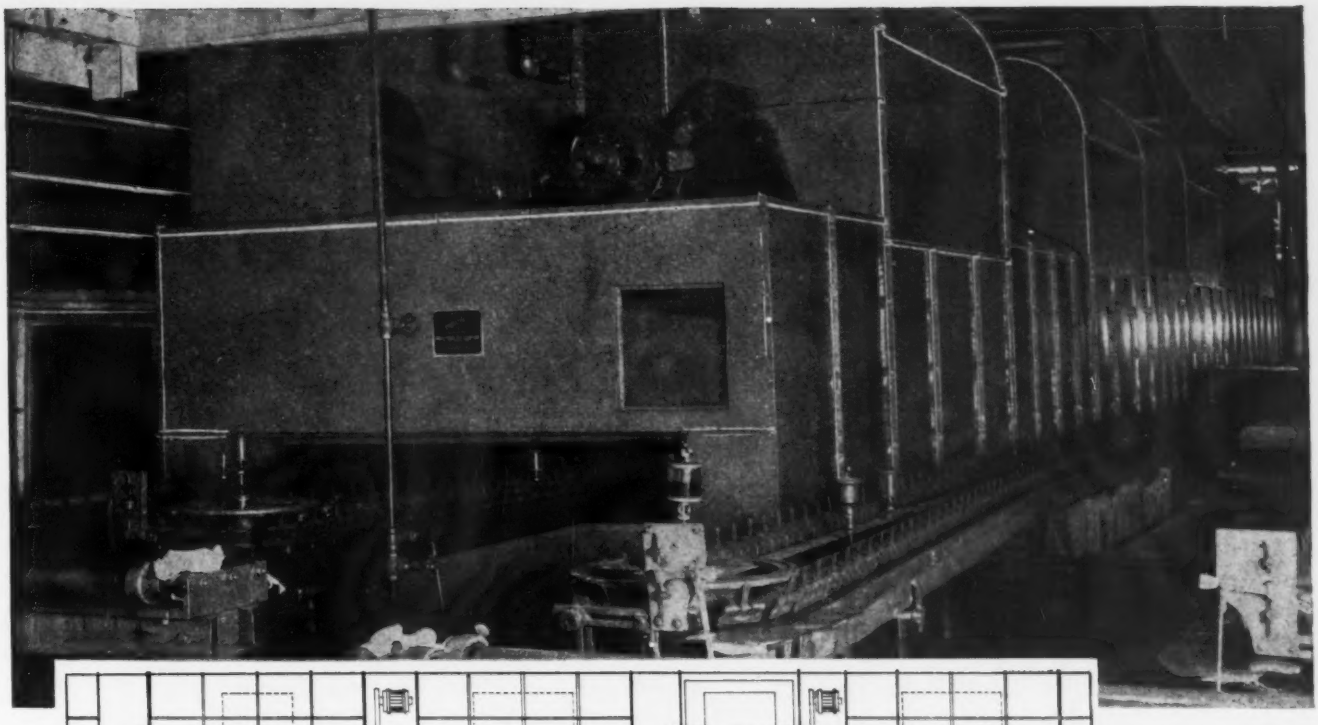
$$P = w \times d$$

$$r = \frac{d(y-1) - 1}{m}$$

N = number of needles in the machine; P = number of divisions in the pattern wheel; t = number of full turns of the pattern wheel for one turn of the machine; m = number of widths which remain; w = number of divisions in one width; d = depth, or number of widths in the pattern wheel; r = rise of the pattern area at the right hand side; and y = number of depths to balance the equation.

SECOND EXAMPLE. Choosing a new $N = 1{,}406$ and $P = 304$, it is easy to find all the other values. The first step is to establish the width. When N and P are given, there is only one width of a rectangular area possible; and this is the greatest common factor of N and P. The prime factors of $N = 1{,}406$ and $P = 304$ follow:

(*Continued on page 244*)



Installation of 80-foot Industaire Tenter Frame Dryer; with plan view of 4 typical self-contained units.

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Fig. 1938
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(*Continued from page 240*)

$1,406 = 2 \times 19 \times 37$

$304 = 2 \times 2 \times 2 \times 2 \times 19$

There are two prime numbers common to both which determine the width; $w = 2 \times 19 = 38$. Test this on the needle equation $N = P \times t + m \times w$. By dividing the needles with P, one gets the full turns, $t = 4$, and has a remainder of 190. By dividing this remainder by the width, one finds the remainder, $m = 5$. By substituting these values in the needle equation, it should balance: $1406 = 304 \times 4 + 5 \times 38 = 1216 + 190$, which is correct. These are all the values but depth, d, and rise, r. The pattern wheel equation, $P = w \times d$, gives the value of depth d.

$$d = \frac{P}{w} = \frac{304}{38} = 8$$

The rise of the pattern area is found from the rise formula by letting $y = 1$.

$$r = \frac{d(y+1)-1}{m} = \frac{8(y+1)-1}{5} = 3$$

DRAWING THE OUTLINE. Having found all the values needed for the pattern area, it is simple to draw the outlines of the area on paper.

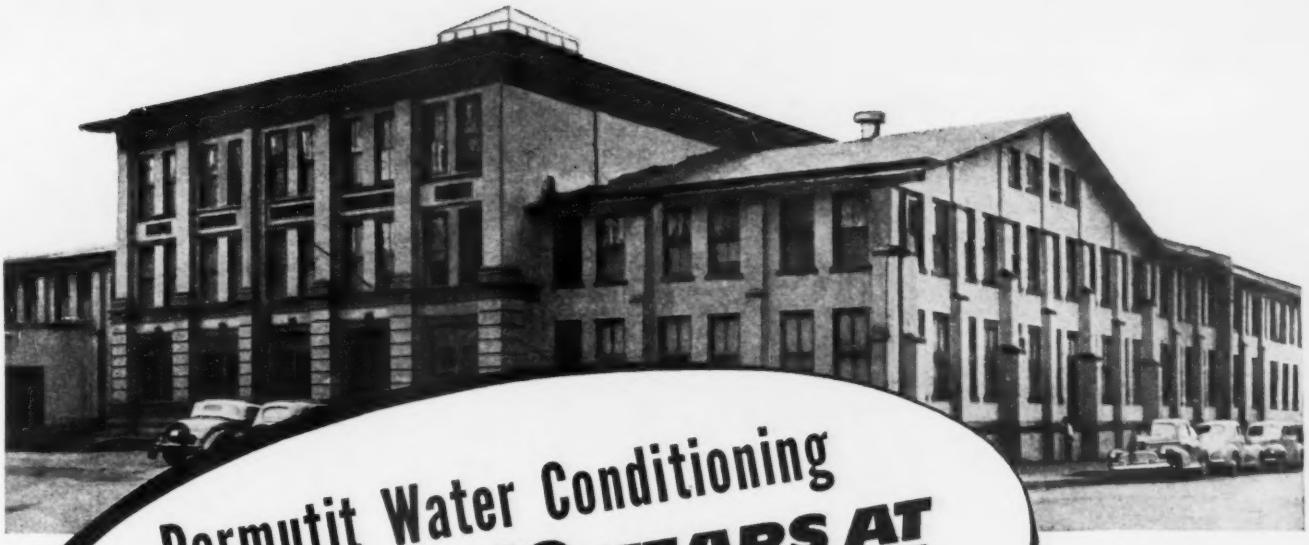
Fig. 4 is the area for one pattern wheel. It is necessary to mark the order in which the widths follow. After 1, one gets 6, 3 (11-8), 8 (16-8), 5 (21-16), 2 (26-24), 7 (31-24), 4 (36-32). To each width add 5 and take off the depth 8 as many times as is necessary to get a number below 8. These widths are written at the side of the pattern area and are important when the wheel is changed or a new one ordered. After the first width, which is in the first course of the pattern area, put on the wheel the second width which is in the sixth course.

FOR MULTIPLE FEEDS. So far, 1 feed with 1 pattern wheel has been considered. In practice, many yarn feeds are used on a machine, and their effect on the rules must be noted. If the number of feeds is $n = 4$, the pattern area will still have the same width; but the depth will be 4 times greater than when one feed is used. Also the rise, r, will be 4 times greater. Applied to the last example where depth = 8, the new depth with 4 feeds will be $D = d \times n = 8 \times 4 = 32$. The rise R will be $r \times n$; or $3 \times 4 = 12$. The rise equation does not apply to these two new values, D and R. Knowing the value of D and R, one can find the number of feeds, n, by finding the greatest common factor of D and R, which will be the number of feeds. Dividing the total depth, D, with n, will give the depth d, for one feed.

$R = 12 = 2 \times 2 \times 3$

$D = 32 = 2 \times 2 \times 2 \times 2 \times 2$

(*Continued on page 248*)



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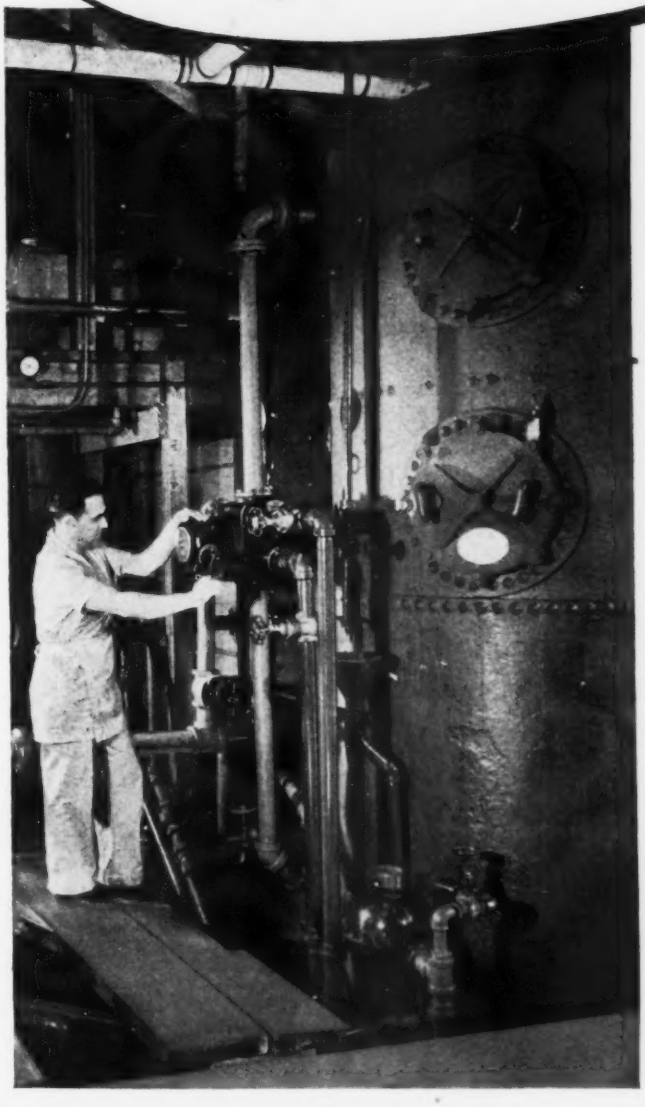

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The knowledge and experience of our technical staff, with the complete facilities of our textile laboratory at Greenville, S. C., are at your service. Our technicians combine practical "know-how" with painstaking research. The combination has solved many textile problems.

CORN PRODUCTS SALES COMPANY

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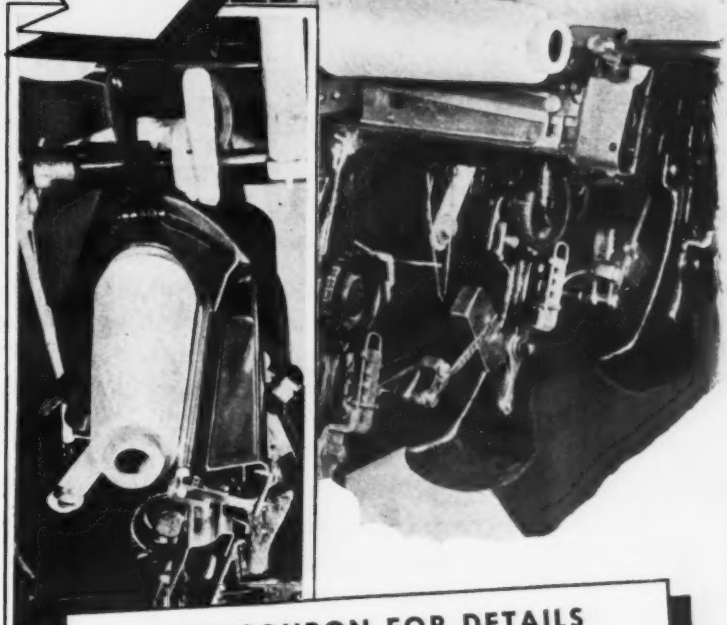
TROUBLED WITH EXCESSIVE BREAKAGE? TOO MANY REWINDS?

Investigate the Kidde Tension Control

Now equipped with new LOW-FRICTION Roller Bail



If you're running into winding trouble, here's an easy way to put a stop to it. Just equip your Universal 50's with the newly improved *Kidde* Tension Control!

Already field-tested and proved as an unfailing way of maintaining uniform winding tension—at any predetermined value down to virtually zero grams—the *Kidde* Tension Control now offers an outstanding new advantage: the *Low-Friction* Roller Bail.

Running on super-precision ball bearings—as accurate as those used on the finest machine tool spindles—this new Roller Bail assures the lowest running friction . . . the highest standards of performance.

Its low-friction characteristics result in less tension build-up on the package . . . less smear and cobwebs.

Put the *Kidde* Tension Control to work—and forget your winding troubles!

Kidde

The word "Kidde" and the Kidde seal are trade-marks of Walter Kidde & Company, Inc.

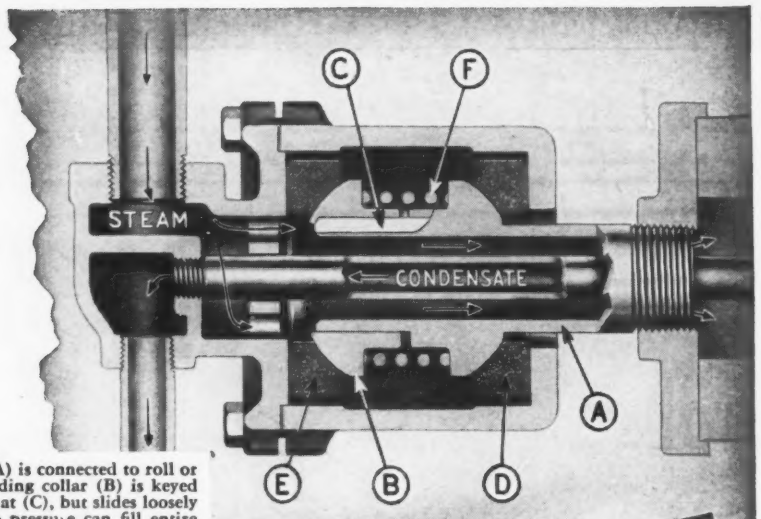
MAIL COUPON FOR DETAILS

Walter Kidde & Company, Inc.
990 Main Street, Belleville 9, N. J.

Gentlemen:
Please send me full information on the *Kidde* Tension Control with Low-Friction Roller Bail.

NAME.....
POSITION.....
COMPANY.....
STREET ADDRESS.....
CITY.....ZONE #.....STATE.....

Walter Kidde & Company, Inc. • 990 Main Street • Belleville 9, N. J.



Nipple (A) is connected to roll or drum. Sliding collar (B) is keyed to nipple at (C), but slides loosely over it so pressure can fill entire housing. This pressure becomes the sealing force, by pressing seal ring (D) tightly against nipple. Both seal ring and bearing ring (E) are of special carbon-graphite, which eliminates oiling and packing. Spring (F) is for initial seating only. Type B Joint illustrated; other types, sizes for all needs.

...it's the biggest little trouble-saver in the mill...

In terms of physical size alone, the Johnson Joint could hardly be called big machinery. But in its ability to save time and trouble, and promote plant efficiency, its stature approaches anything the industry has ever seen.

The Johnson Joint was designed to go after the old stuffing box and steam fit troubles in a business-like way, and it literally knocks the stuffing out of them. There's no packing of any kind. There's no oiling required, ever. There's no adjusting — the higher the pressure, the tighter the seal. There's little to fear from misalignment—with provision for both lateral and angular movement built right in. Note besides how neatly it provides for more efficient syphon drainage, through the same head that admits the steam.

In dollars and cents, what does all this add up to? Well . . . enough at least to pay the cost of switching over to Johnson Joints in just a short while. Enough certainly to make the Johnson Joint too big to overlook.

Write for literature and the name of your nearby Johnson representative.

JOHNSON *Rotary Pressure* JOINTS

THE JOHNSON CORPORATION
814 WOOD STREET
THREE RIVERS, MICHIGAN

(*Continued from page 244*)

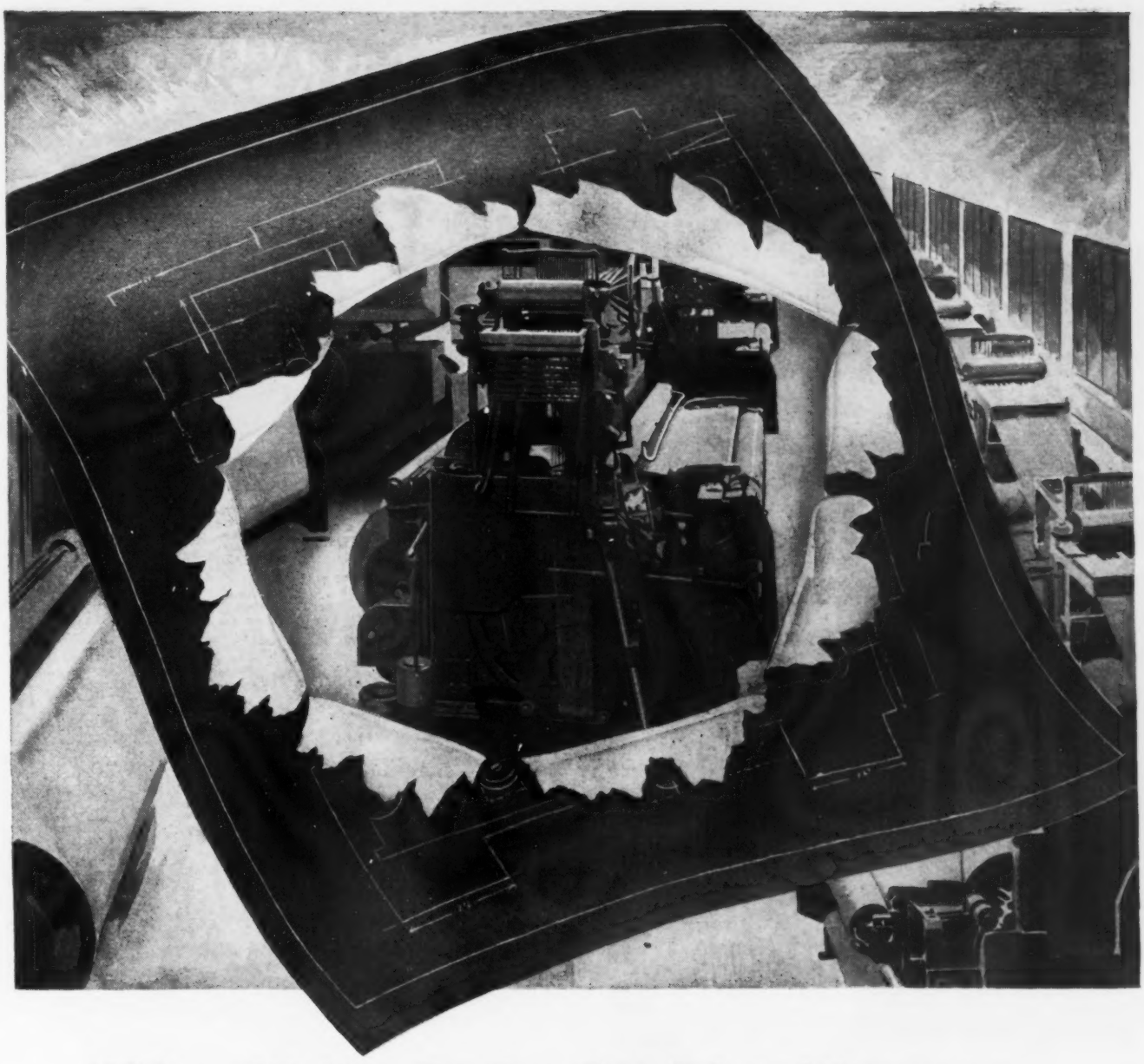
In the example, 4 is the greatest common factor and also the number of feeds used. The pattern area for 4 feeds is shown in Fig. 5, and at the side is the order of widths. By using 4 feeds, there will be in the first 4 courses 4 widths number 1 above each other produced by the first, second, third, and fourth feeds. The same is true of all the other widths.

There are patterns where 2, 3, or 4 feeds produce one course in the design; and this will have an effect on the pattern depth put on paper for drafting the design. When using 4 feeds, there are 3 possible depths. There may be 4 courses for one revolution of the machine, and the depth will be as in Fig. 5. There may be 2 feeds necessary to complete one course; then the pattern area is half the depth and half the rise of Fig. 5. When 4 feeds complete one course, the design area is as in Fig. 4. The contracted area is used for drafting the design in order to see how it will look in the fabric. When this is satisfactory, a new design area is put on paper; and the complementary courses are split to discover what the pattern wheel for each feed has to do. In a 6-feed machine, 2 or 3 feeds may complete one course, which will give 3 or 2 actual courses in the fabric, respectively.

FINDING VALUES FROM PATTERN. A pattern for production should be copied on paper to find the pattern area and the rise, it should be noted whether two or three or more feeds work one course, as this has an influence when determining the number of feeds. The values for width w, depth D, and rise R can then be read. From D and R is determined the number of feeds by getting the greatest common factor. Having found n, one can find depth d and rise r; also the pattern area (P) for one pattern wheel. The formula $m = \frac{h(y+1)-1}{r}$ gives the remainder. The N for number of needles has to be found.

Referring to the last example where $N = 1{,}406$ and $P = 304$, the same pattern area could be produced with a different number of needles if the basic relation remained the same. The basic relation will remain the same if the number of needles is diminished or enlarged by the number of divisions in the pattern wheel or a multiple of it. Then the number of full turns of the pattern wheel will be smaller or greater, but the remainder will not change, and so the basic relation also will not change. To point out a few possible N numbers which will have the same pattern area, there are:

(*Continued on page 252*)



Without Waiting For Our Blue-Print of Tomorrow... the Whitman Organization Is Here Today!

Streamlined production methods... mechanical equipment that keeps pace with technological advancement... stringent quality-control ... these are the things that account for the leadership of Whitman Textiles... in quality, in modernity, in dollar value.

WILLIAM *Whitman* COMPANY, INC.

GENERAL OFFICES: 261 FIFTH AVENUE, NEW YORK 16, N. Y.

Cotton & Rayon Fabrics Division, 40 Worth St., New York, N. Y.

BOSTON: 79 Chauncy Street • CHARLOTTE: Commercial Bank Building • PHILADELPHIA: 1600 Arch Street
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NEW HIGHS IN TEXTILE DRYING

...with GAS

Palmer-tenter unit equipped with Radiant GAS Burners arranged under the blanket traveler-frame

PURE DYES

Colonial

PIECE DYE WORKS, Inc.

2101-2107 EIGHTY-THIRD STREET, NORTH BERGEN, NEW JERSEY

January
second
nineteen forty-seven

American Gas Association
420 Lexington Ave.
New York 17, N. Y.

Gentlemen:

We are pleased to state the advantages obtained by the use of infra-red burners on our Palmer Tenter Unit. We have found this equipment to be very advantageous to us and, since the date of its installation in 1942, we have had completely satisfactory trouble-free operation.

Prior to the installation of this equipment, we had a number of open flame gas burners. After the installation of two infra-red burners, we were able to increase our drying speed on light quality acetate, rayons and rayon acetate mixtures by one hundred per cent. We are now also able to process heavy quality goods which we were unable to dry with the old type of equipment. We now run a four fibre suiting fabric consisting of aralac, cotton, wool and rayon.

One advantage which we feel to be well worth mentioning is the increase in life of our Palmer blankets. These blankets cost $550.00 each. Prior to the installation of infra-red equipment, it was necessary to install a new blanket on an average of once every six weeks. We now find it necessary to change blankets only twice a year. This feature alone has repaid the cost of the equipment and gas used many times over. Needless to say, we are very well pleased with our investment in these burners.

Very truly yours,

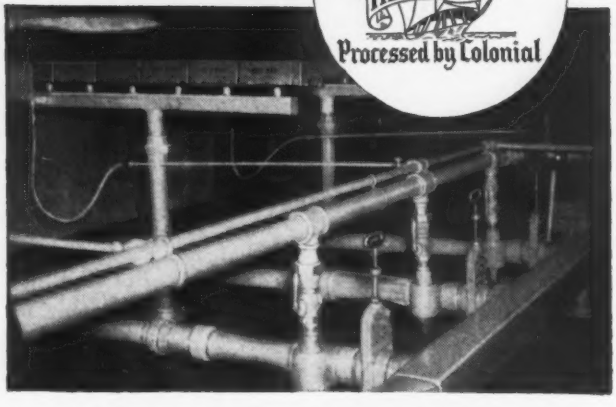
COLONIAL PIECE DYE WORKS

Treasurer

HIGHLY RESISTANT TO ATMOSPHERIC FUMES

RESISTAIR

Processed by Colonial



TEXTILE processors utilize the production-line advantages of GAS and modern Gas Equipment in many operations; they record outstanding success in reducing processing costs and increasing production with textile machinery employing GAS for drying, singeing and similar requirements.

Radiant heat gas burners used on a palmer-tenter unit enabled Colonial Piece Dye Works, Inc., North Bergen, New Jersey, to establish new production records while amortizing the cost of equipment and fuel through savings in palmer blanket replacements.

Wherever heat is required for textile processing the ideal production-line fuel is GAS; the ideal productioneering tools for heat processing have been developed by the manufacturers of modern Gas Equipment. Your local Gas Company will aid in applying GAS to your textile heating operations.

Photos courtesy Red-Ray Manufacturing Co., Inc. manufacturers of Radiant Heat GAS Burners

AMERICAN GAS ASSOCIATION

420 LEXINGTON AVENUE, NEW YORK 17, N.Y.

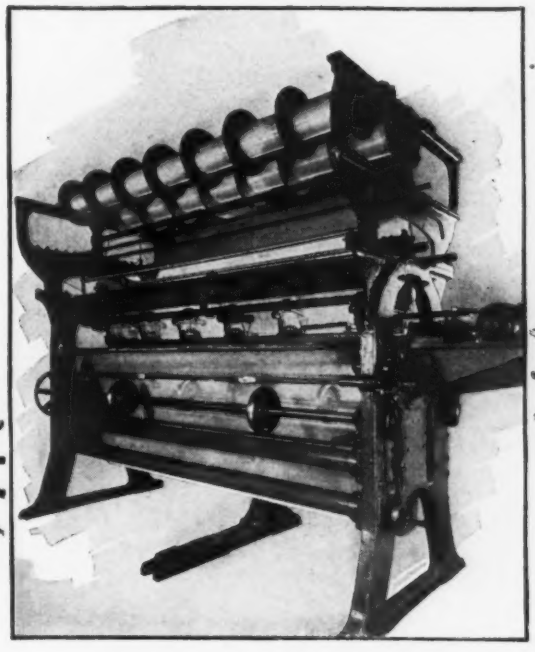
MORE AND MORE...

THE TREND IS TO GAS

FOR ALL INDUSTRIAL HEATING

LATEST IN RASCHEL-TYPE WARP-KNITTING MACHINES!

NEW HIGH SPEEDS!



WIDE VERSATILITY!

UNUSUAL ACCESSIBILITY!

Three outstanding features combine to make the *Kidde* Knitter the last word in Raschel-type machines:

1. Exceptionally high sustained speeds—even on complicated patterns. These speeds are made possible by a radically new drum drive that combines the advantages of index feed and worm feed—and by a new motion on needle bars, replacing the conventional piston type movement.

The *Kidde* Knitter is specifically designed to withstand the wear and tear of these high speeds . . . as well as stresses of knitting such materials as rubber. Framework is of tubular construction . . . extra strong, extra rigid. Anti-friction bearings are liberally used.

2. Wide versatility. The *Kidde* machine will knit practically any type of thread, yarn or elastic . . . in simple or intricate patterns. A few examples: ELASTIC FABRICS for corsets, girdles, brassieres. DRESS FABRICS. VEILINGS and NETTINGS. CURTAINS. NARROW FABRICS: edgings, braidings, laces. SHOE CLOTH. KNITTED OUTERWEAR FABRICS for sweaters, polo shirts.

You can use single or double needle bars—and can knit a full 100 inches.

3. Unusual accessibility. With the *Kidde* Knitter, setting up and changing of patterns are quick, simple jobs.

The entire swing bar assembly can be adjusted as a unit, both vertically and horizontally. Stroke of the latch needles and guide needles can be readily adjusted . . . without need for changing cams. The full cloth roller can be easily removed from the side of the machine.

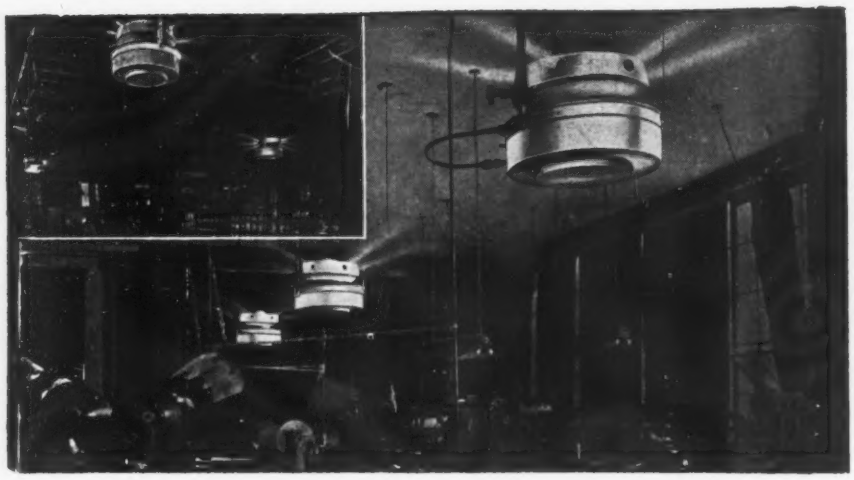
Get all three advantages with the *Kidde* Knitter!

Write for descriptive literature—or better still, see for yourself what the *Kidde* Knitter can do. A machine is in operation at our Bloomfield plant—we'll be glad to arrange a demonstration. Just write for an appointment.

The word "Kidde" is the trade-mark of Walter Kidde & Company, Inc., and its affiliated companies.

KIDDE MANUFACTURING CO., INC. • BLOOMFIELD, NEW JERSEY

Clip the Coupon and **LEARN HOW YOU CAN SOLVE** recurring **HUMIDIFICATION PROBLEMS**



When you have such problems as new fibers or change of humidity, you can ruin stock and waste good production time by having to fool around with cumbersome humidification.

Learn how Walton Humidification provides prompt action with its multi-directional domes (see photo) which come completely assembled, ready to hang up anywhere you can run a water pipe.

Learn about the principle of horizontal discharged vapor and our accurate automatic control operated by simply setting a dial.

Walton Humidification Proved

Write for your copy "HUMIDITY" and get *all* the facts on Walton Humidification. We will be glad to refer you to satisfied users, to show you how "overnight" installation can be made, how economical it is to install and operate, and much more valuable information.

Please mail me copy of "HUMIDITY"
WALTON LABORATORIES, Inc.
Irvington 11, N. J.

NAME.....

COMPANY.....

ADDRESS.....

.....

T. W.

(Continued from page 248)

$$N = 1{,}406 + 304 = 1{,}710$$
$$N = 1{,}710 + 304 = 2{,}014$$
$$N = 2{,}014 + 304 = 2{,}318$$

To prove that the width will not change, one notes that the greatest common factor of $N = 2{,}318$ and $P = 304$ is again 38. The needle equation ($N = P \times t - m \times w$) will show a change in the number of full turns of the pattern wheel but not in the remainder and width; viz., $2{,}318 = 304 \times 7 + 5 \times 38$

CHOOSING NEW AREA. A certain pattern area given by the maker of the machine may not be suitable for a special purpose. However, a new pattern area can be designed, as there are many possible areas for a given number of needles. The number of needles in a machine cannot readily be changed within a certain limit. Take, for example, a machine with 1,656 needles. The width of a pattern area is the product of prime numbers corresponding to the prime-number factors of N in the machine. It is necessary to see how the prime factors of 1,656 can be combined to get a suitable pattern width.

$N = 1{,}656 = 1 \times 2 \times 2 \times 2 \times 3^2 \times 3 \times 23$

The possible widths are: 1, 2, 3, 4, 6, 8, 9, 12, 18, 23, 24, 36, 46, 69, 72, 92, 138, 184, 207, 276, 552, and 1,656. These numbers are prime numbers or products of combinations of prime numbers. For example $36 = 2 \times 2 \times 3 \times 3$; $92 = 23 \times 2 \times 2$.

Next, the size of the pattern wheel and the choice of the depth must be considered. For the depth, there can be chosen only those numbers which are not divisible by the prime numbers left over from the needle prime factors after the choice of the width.

If the size of the pattern wheel should be within the range of 105 to 126 divisions, there are only 4 suitable pattern areas, since the choice of depth must keep to the rule just mentioned.

The possible areas for 1 feed are:

$$P = w \times d$$
$$P_1 = 108 = 36 \times 3$$
$$P_2 = 115 = 23 \times 5$$
$$P_3 = 120 = 24 \times 5$$
$$P_4 = 126 = 18 \times 7$$

The needle equations show the following relations:

$$N = P \times t + m \times w$$
$$1{,}656 = 108 \times 15 + 1 \times 36$$
$$1{,}656 = 115 \times 14 + 2 \times 23$$
$$1{,}656 = 120 \times 13 + 4 \times 24$$
$$1{,}656 = 126 \times 13 + 1 \times 18$$

From these we see that $m_1 = 1$; $m_2 = 2$; $m_3 = 4$; $m_4 = 1$.

The rise equations are:

$$r = \frac{d(y+1) - 1}{m}$$

$$r_1 = \frac{3(y+1) - 1}{1} = 2 \qquad y = 0$$

(Continued on page 254)

Hunter

1847 One Hundred Years 1947

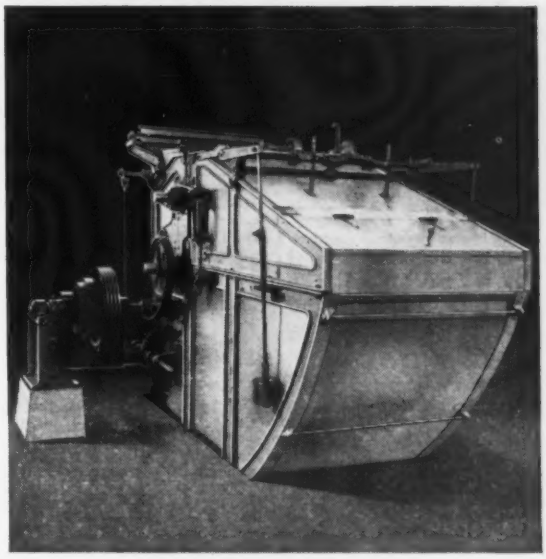
"WHITES"

. . . NEED SPECIAL HANDLING
. . . NEED HUNTER FULLING

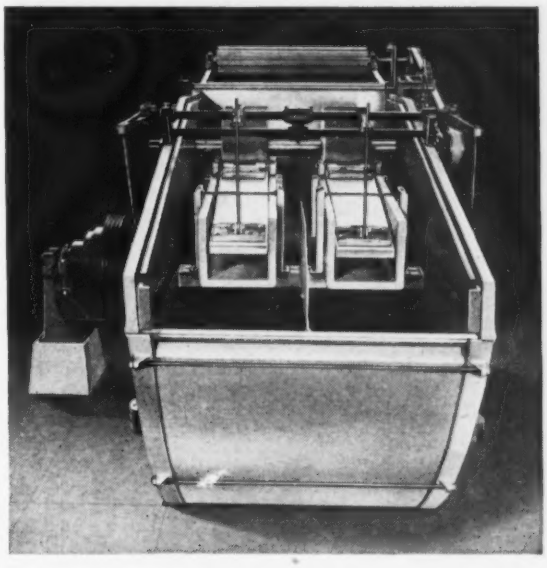
Because "whites" need extra care in handling and fulling, need insurance that dirt will not be present in the fulling mill Hunter has designed the No. 21 Stainless Steel Fulling Mill which has clean, gleaming stainless steel at every critical point. The entire body of the mill as well as the doors are fabricated from heavy gauge "Enduro" steel. The sectional rubber rolls are mounted on stainless steel shafts. Crimping boxes, stop motions, soap boxes and unloading roll are all of stainless steel.

Nor have mechanical details been overlooked. Power is supplied through a V-belt drive, all shafting runs in roller bearings, top roll tension is pneumatically controlled and Alemite Zerk lubrication points are provided where necessary.

It will pay you to get full information on these special fulling mills which have been so enthusiastically received.



Hunter No. 21 Stainless Steel Fulling Mill



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QUICK SOURCE FOR

Inland Floor Plate

Super-Safe 4-Way Grip

Want protection against slipping and falling accidents in your plant? You get it with Inland 4-Way Floor Plate because projections grip from every angle; give much safer traction. Other advantages: Great strength and longer wear because rolled from tough, open hearth steel. Easy maintenance because pattern allows 4-way drainage. Call, wire or write the nearest Ryerson plant for prompt delivery.

JOSEPH T. RYERSON & SON, INC., Steel-Service Plants at: Chicago, Milwaukee, Detroit, St. Louis, Cincinnati, Cleveland, Pittsburgh, Philadelphia, Buffalo, New York, Boston, Los Angeles.

OTHER PRODUCTS:	
Bars	Alloys
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RYERSON STEEL

short cut to whiteness

metso® granular

Are you looking for higher efficiency in your boiling or scouring operations? Switch to Metso. Here is a scientifically balanced combination of alkali and soluble silica, which loosens more dirt and grease. Metso's specially valuable function is to prevent the removed dirt from redepositing.

Send for a copy of Bulletin No. 17-8 which describes the use of Metso Granular for boiling and scouring processes as well as other uses of PQ Silicates in textile processing.

metso® detergents

PHILADELPHIA QUARTZ CO., Dept. A, 127 South Third St., Philadelphia 6, Pa.

(*Continued from page 252*)

$$r_2 = \frac{5(y+1)-1}{2} = 2 \qquad y = 0$$

$$r_3 = \frac{5(y-1)-1}{4} = 1 \qquad y = 0$$

$$r_4 = \frac{7(y+1)-1}{1} = 6 \qquad y = 0$$

The machine has 8 feeds, and 2 feeds complete one course. One gets $D_1 = 12$; $D_2 = 20$; $D_3 = 20$; $D_4 = 28$; and $R_1 = 8$; $R_2 = 8$; $R_3 = 4$; $R_4 = 24$.

FOUR POSSIBLE AREAS. The resulting pattern areas are shown in Figs. 6, 7, 8, and 9. If the designer is looking for an area where a diagonal can be drafted in, all 4 take diagonals of different repeats without showing the rise. A continuous diagonal hides the rise completely and gives opportunity for other designs in combination with the diagonal. Pattern areas in Figs. 8 and 9 offer more scope for design drafting because the diagonal has a wider repeat which can be divided into smaller sections. In Fig. 9, the diagonal repeat is 14; and in Fig. 10 four different diagonals based on a 14 repeat are shown. Many more are, of course, possible. The diagonal in Fig. 8 has a repeat of 20, which also gives a good opportunity for designing.

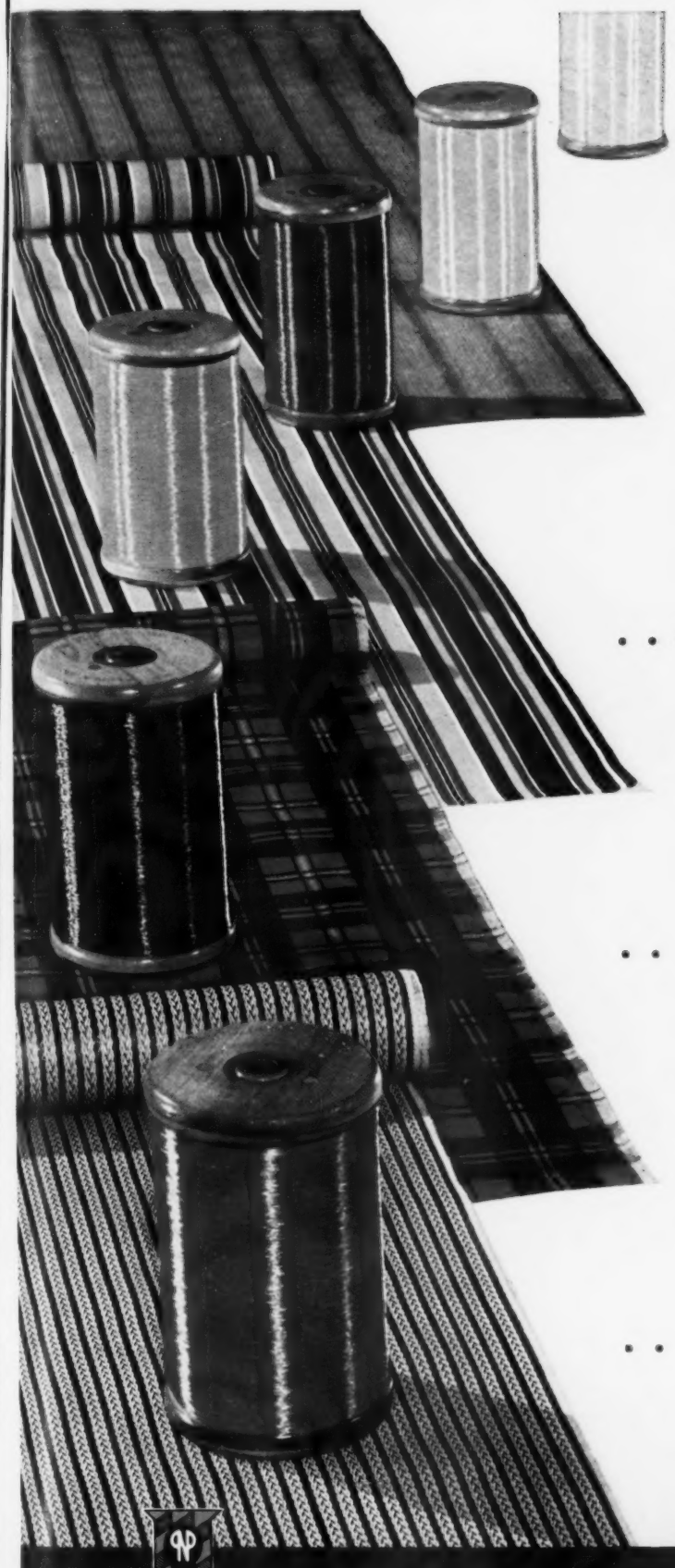
The numbers at the left-hand side give the order of widths placed above each other. In Fig. 7, the numbers on the top and the right hand side of the area show the order of the drafting in of the diagonal, starting at the bottom of the square. When the line enters the area above or at one side, since these areas are identical with the full area, the starting point for the next line can be located. Because the diagonals differ, the repeat of the diagonal is related to the area and the rise of the pattern area. If the diagonal does not work out in one direction, it is necessary to try the other direction, as Figs. 6 and 9 show; or it may not be drafted in at all.

If a depth should be chosen which is not in agreement with the rule, the width of the area will be changed and by that fact also the depth. For example, the width wanted may be 12. To choose the depth wrongly as 10, one gets the pattern wheel $P = 120$. When this is checked again for width by applying the rule that width is the greatest common factor of the number of needles and the size of the pattern wheel, the width is 24 which proves the choice of the depth wrong.

This rule can also be proved by simply writing down the width and considering the remainder in the form of Fig. 2. The total remainder is 96, and one gets, dividing it by 12, the number of widths: $96 \div 12 = 8$.

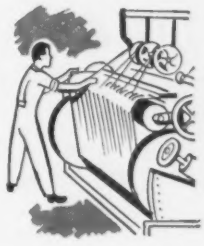
Writing the widths in 8 columns of the remainder (Fig. 11), gives one a

(*Continued on page 257*)



Saran BY NATIONAL

monofilaments

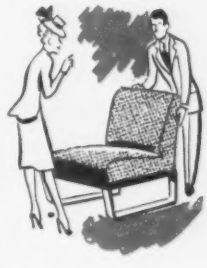


Rich colors, exciting textures and thrilling patterns are coming off the looms these days. They are fabrics woven of SARAN monofilaments and they are making strides in the textile industry in larger and larger quantities.

. . . easy to weave

The gorgeous beauty of these fabrics isn't the only reason for this growing swing to SARAN. These flexible filaments — now available as fine as .005"—make the going easy for makers of upholstered furniture and auto seat covers.

. . . easy to work



They invest the fabrics with a durability that's unbelievable . . . with an indifference to dirt and stains . . . a complete disregard for scuffing and rough usage. Small wonder, then, that SARAN monofilaments lead a direct line of topmost saleability right into the store where finished SARAN-woven products are sold.

. . . easy to sell

SARAN BY NATIONAL denotes monofilament, rattan and tape manufactured by The National Plastic Products Company from Saran, a vinylidene chloride copolymer made by The Dow Chemical Company and supplied to mills, weavers and other fabricators for specific end uses.

TRADE MARK REG. U. S. PAT. OFF.

The NATIONAL Plastic Products Company

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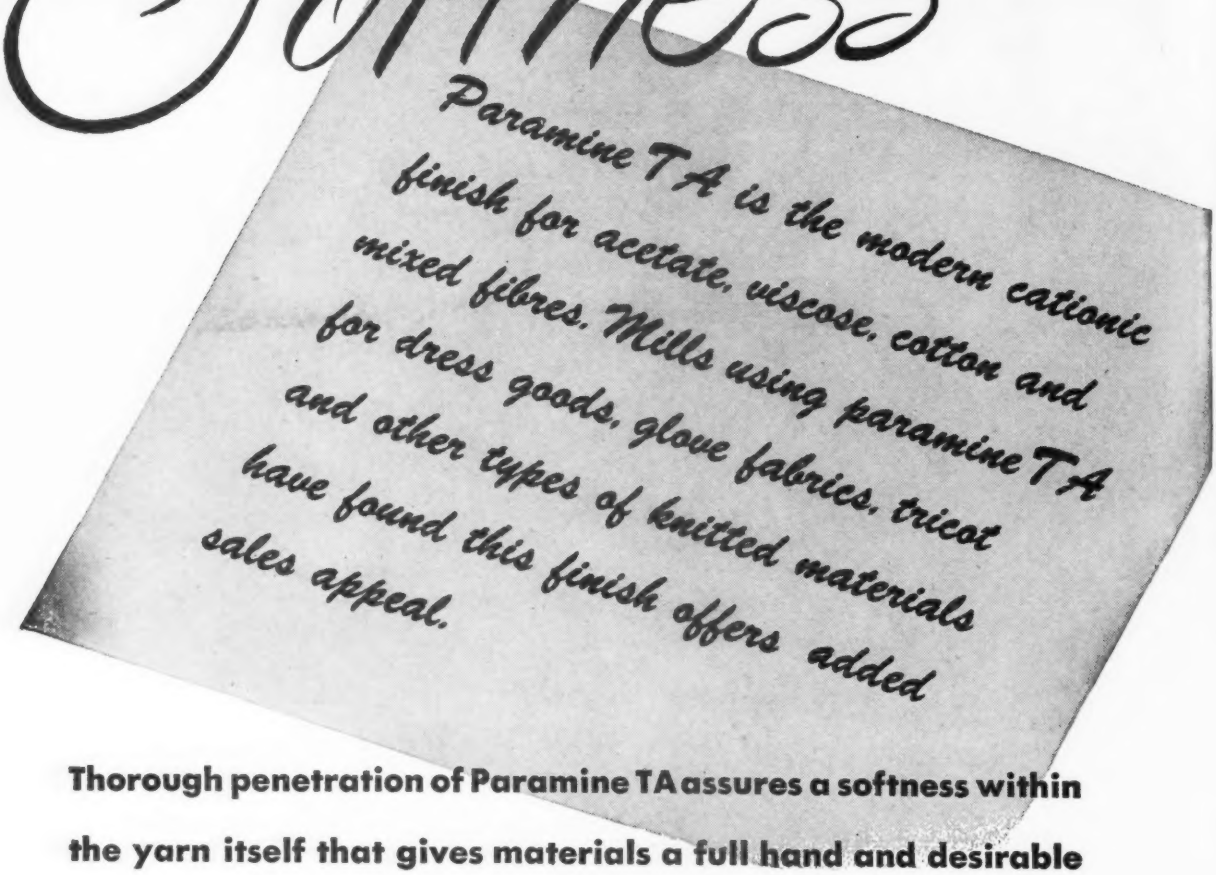
IF YOU WANT

DURABLE *Softness*


Paramine TA is the modern cationic finish for acetate, viscose, cotton and mixed fibres. Mills using paramine TA for dress goods, glove fabrics, tricot and other types of knitted materials have found this finish offers added sales appeal.

Thorough penetration of Paramine TA assures a softness within the yarn itself that gives materials a full hand and desirable drape—its substantive action produces a durable, lasting finish

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Arkansas Co. INC.

Manufacturers of Industrial Chemicals for Over 40 Years

NEWARK, NEW JERSEY

(*Continued from page 254*)

pattern area with the double width 24 and half the chosen depth 5. This area corresponds to one of the four areas chosen before.

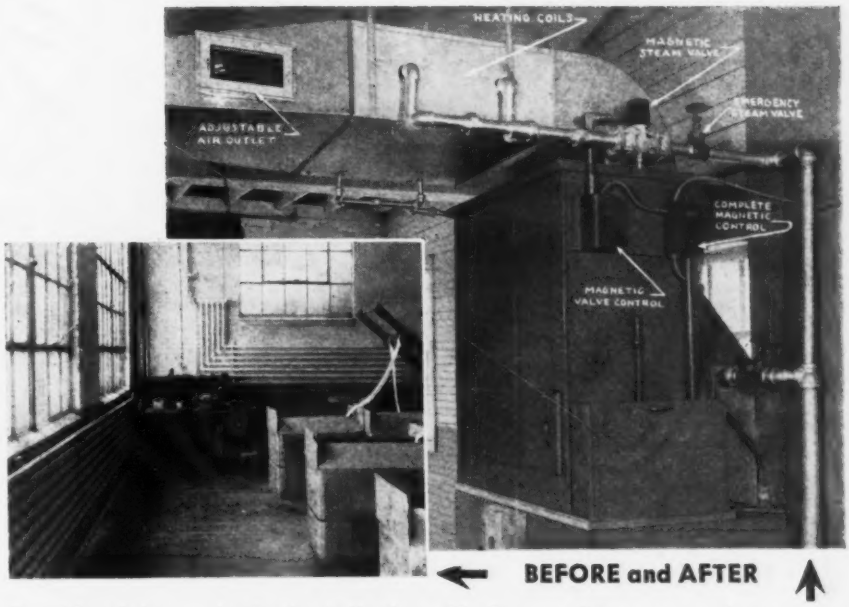
OTHER SHAPED AREAS. All the areas so far discussed have had a rectangular form. There are also many differently shaped areas based on the rectangular area, but their use offers no advantages. It is difficult to design a pattern without showing the rise into the rectangular area; the drafting of designs into areas with 6 or more sides is harder still. From every rectangular area, 1 or 2 L-shaped areas can be evolved; and with the help of arithmetic, a great number of differently shaped areas can be drawn into the chart of Fig. 2 which meet the condition that every area, however shaped, must contain all the widths of the pattern wheel. From a given pattern wheel, there is only one order in which the widths follow to the side and on the top of each other. Fig. 12 makes this clear.

The two L-shaped areas are found in this way: Every pattern wheel leaves a remainder after it has turned a number of times around the machine. The whole remainder is taken for the width. This new width divides the pattern wheel and leaves a remainder. Fig. 13 may be taken as an example, showing a pattern area with these values: $N = 396$, $P = 90$, $w = 18$, $d = 5$, $n = 4$, $m = 2$, $r = 2$, $R = 8$, $D = 20$. The whole remainder $m \times w$, is taken as width $w_1 = 36$. This goes into the wheel twice and leaves a remainder of $w = 18$. One gets two widths w_1, w_2, and two depths d_1, d_2, (D_1, D_2. Fig. 14 shows one of the L-shaped pattern areas. Comparing Fig. 13 with Fig. 14, see that the widths are placed in the same order above each other and also to the sides. The pattern area in Fig. 14 corresponds to the pattern area *b* in Fig. 12 and contains the 5 widths of the pattern wheel.

The second pattern area, corresponding to the shape a in Fig. 12, is arrived at in the following way: The pattern wheel in $N = 396$ and $P = 90$ makes 4 full turns, and there is the remainder of 36 divisions or 2 widths. There are 54 divisions short to complete the fifth turn of the pattern wheel. These 54 divisions taken as width of the pattern result in the shape of pattern area a in Fig. 12. It may be noted that the areas a and *b* in Fig. 12 make the effect of the two spirals more noticeable.

These L-shaped areas become useful when the rectangular area is narrow. In the case of $N = 101$ and $P = 91$, the greatest common factor and also the width is 1, depth $d = 91$, remainder $m = 10$, rise $r = 9$. It is difficult here to draft a design in a column 1 wide and 91 deep. Taking the re-

EACH UNIT of the NEW AIR-PERME-ATOR For HEAT and HUMIDITY



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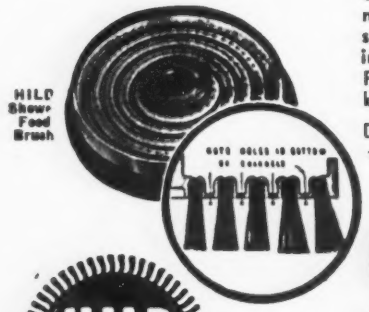

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STERLING RING TRAVELER CO.

FALL RIVER, MASS.

mainder as width, we get $w_1 = 10$; $w_2 = 1$; $d_1 = 9$; $d_2 = 1$. The rectangular area so transformed into the L-shaped area is shown in Fig. 15, where the numbers in the squares demonstrate that in this area there are all the widths from 1 to 91.

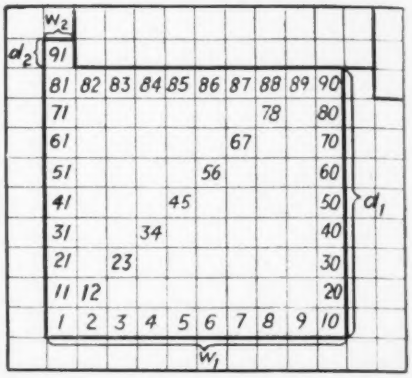

Fig. 15. *L-shaped areas are useful where rectangular areas are narrow.*

Mile-A-Minute Travelers

(*Continued from page 163*)

traveler required for a new yarn from the number of traveler previously used on a similar yarn as follows:

$$\frac{\text{No. of yarn being run} \times \text{wt. in gr. of 10 travelers used}}{\text{No. of yarn to be made}}$$

The quotient is the weight in grains of the 10 travelers required, and the traveler number corresponding to this weight can be found in the traveler table.

Many other factors affect the selection of travelers. Among them, the following factors appear to cause the most trouble:

Increased spindle speed requires a lighter traveler.

Lighter yarn number calls for a lighter traveler.

Larger ring diameters require lighter traveler.

Smaller bobbin diameter requires lighter traveler.

New rings necessitate lighter traveler.

Short or weak stock may need lighter traveler.

Reduction in twist requires a lighter traveler.

Humid, sticky weather may require the use of lighter traveler.

TRAVELER TABLES. A comparative table shown as Table I gives numbers and weights of various makers. Information from all manufacturers is not available for the table, but the reader may supply the data for his particular

(*Continued on page 262*)

RAYTHRO 75

RAYON SOAKING COMPOUND

Improves Work...Lowers Costs

All along the line

INCREASES yarn production	IMPROVES fabric quality	REDUCES supply costs
Fewer ends down on twisters	Controlled uniform finish	Lower initial cost
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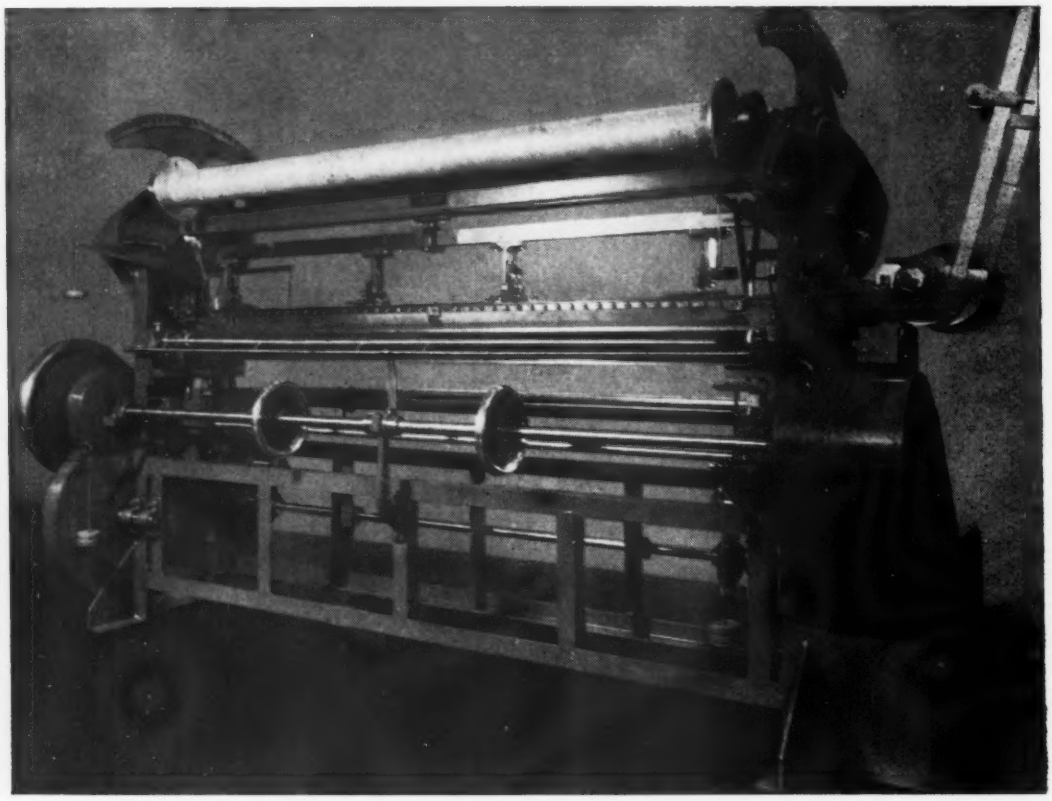
RASCHEL TYPE WARP KNITTER



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At the recent Knitting Arts Exhibition hundreds of visitors commented about its smooth running, never failing, high speed production. There are so many fabrics you can knit better and cheaper on this Raschel type warp knitter you owe it to yourself to investigate. Tell us your problems. There's no obligation. Early deliveries are assured.

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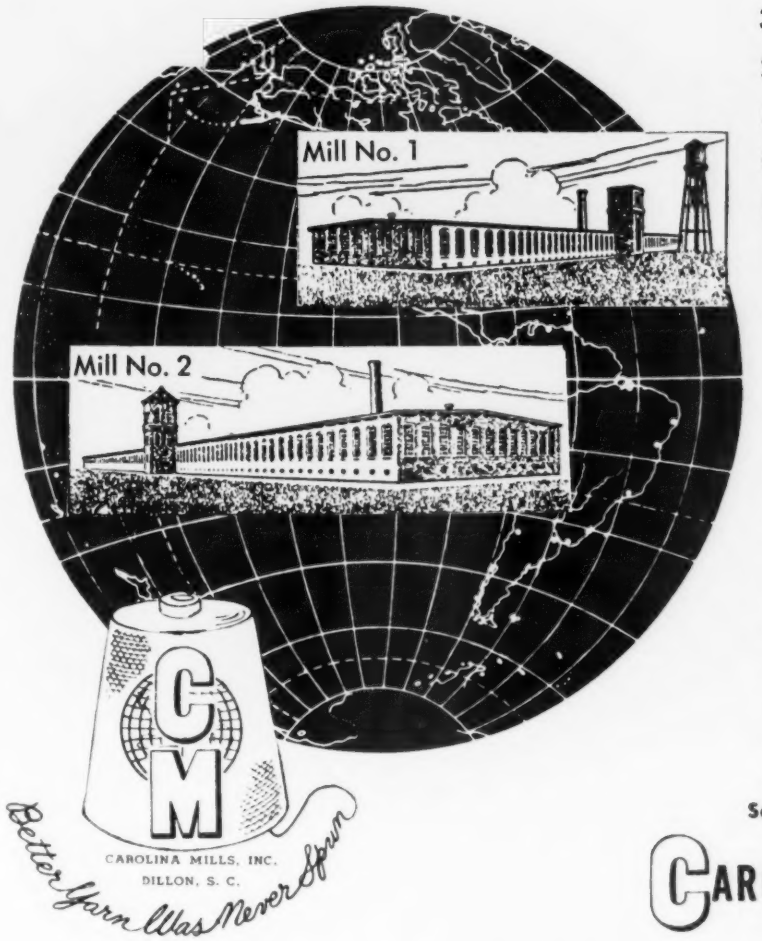

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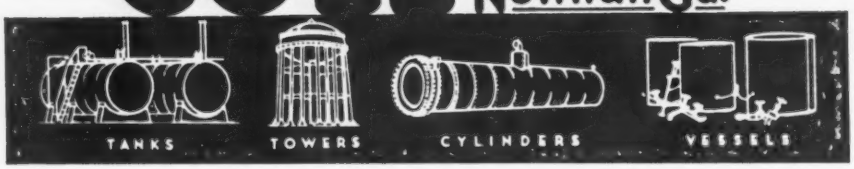

(Continued from page 258)

brand of traveler in event they are missing from the table. Since there are slight differences in equivalent weights and numbers, the comparative table will permit the selection of the proper corresponding number in mills which use more than one make of traveler. (The yarn numbers given with the table are approximate only and are subject to modification depending upon the details of spinning conditions.)

It is generally accepted both by the makers and the users of the steel-clip traveler that there is a maximum surface speed beyond which traveler life and efficiency are greatly reduced. That speed has been determined by tests to be about 5,200 ft. per min. The result of those tests has developed what mill men call "the mile per minute rule" of traveler surface speed. Most mills follow this rule in establishing traveler speeds.

In Table III, the speeds of the traveler in feet per minute for various ring sizes and spindle speeds are shown. It will be noted that the traveler speed on 2-in. rings does not reach the danger point until 10,000 rpm. of the spindle is obtained. With a 3-in. ring, the danger point is reached when 6,500 rpm. of the spindle is obtained.

LIFE OF TRAVELER. But other factors may also affect the life of the traveler. The amount of tension on the yarn, the condition of the ring, the correctness of traveler design, the manufacturer, selection, and other factors will determine the length of time that travelers will run. Generally, mills change travelers on medium counts after approximately 144 hr. of operation. Attention to such details as the traveler cleaning pins will increase the life of the traveler. The pins should be checked and set with a gage to prevent the accumulation of lint on the traveler.

Careful maintenance of spinning rings is as important as the correct selection of the traveler. The double-flanged ring, now in general use, tempts many spinning overseers into permitting the random changing of rings. A worn or chipped ring is simply reversed. Better practice forbids the random change and enforces the planned change of rings. In other words, the entire frame is the unit of change rather than the individual ring. Such a method provides a central control over ring maintenance and avoids waste since discarded rings may be inspected and reclaimed if desirable.

Cleanliness of ring and ring rail is essential, and effective cleaning schedules must be enforced by supervision

(Continued on page 266)

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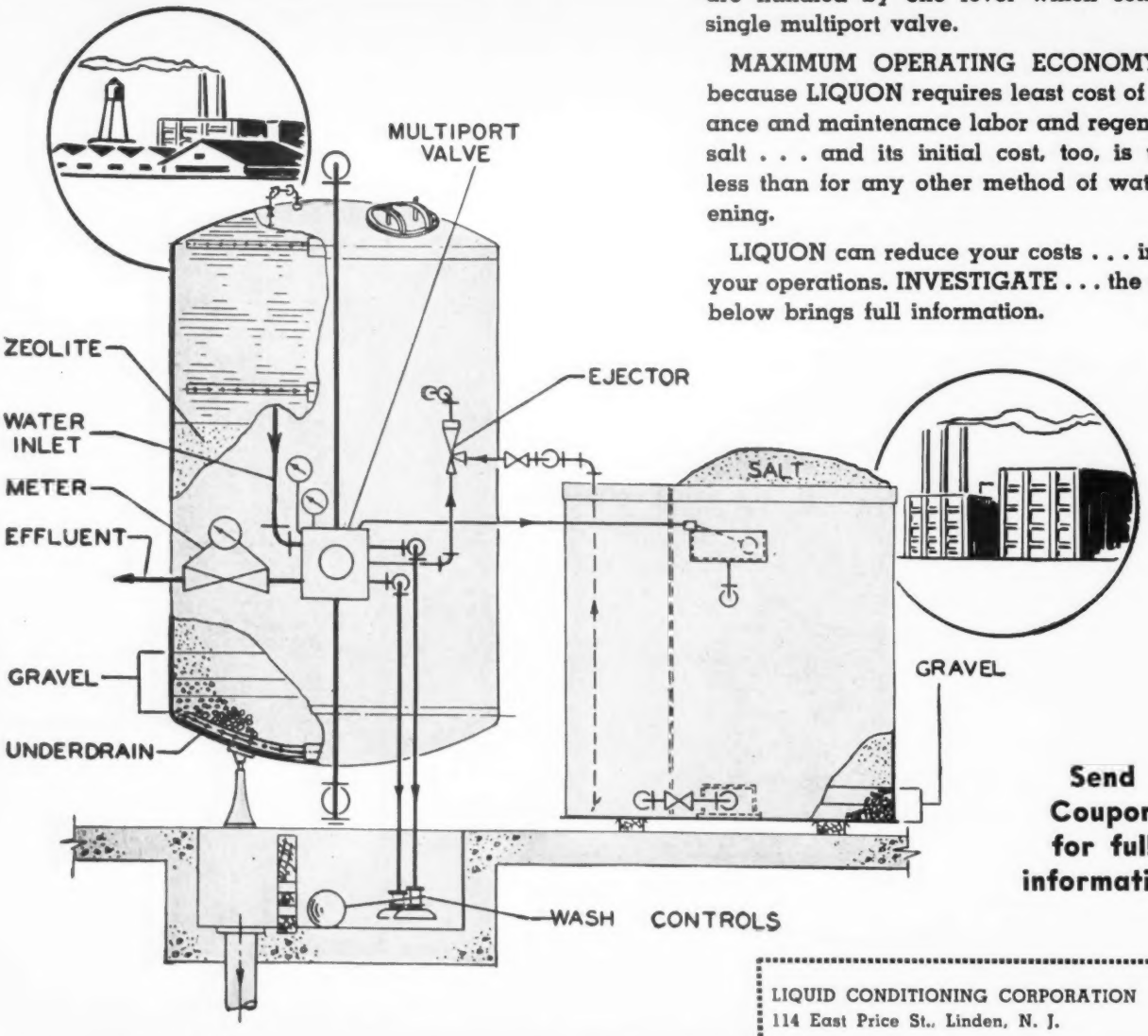

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All the machines were later destroyed however, and Thimmonier barely escaped with his life, when a mob became incensed with the idea that henceforth the machines would prevent the journeyman tailor from obtaining a livelihood.

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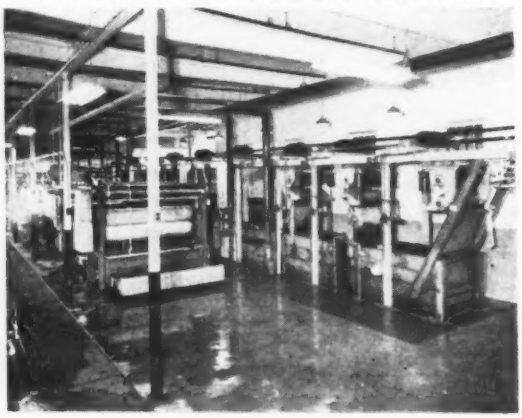

A Typical Installation

The above installation at a prominent worsted mill shows the Fleet Line Continuous Cloth Washer with a Fleet Line Soaping Machine in the right background. This mill uses the open width soaping machine to pad soap on the cloth before the cloth goes to the washer. Other mills take cloth direct from fulling mills to washer. In both cases the successful operation of the Fleet Line Continuous Cloth Washer is assured.

Here are a few of the reasons for the success and popularity of this machine:

1. Handles the heaviest and dirtiest fabrics using the same hot water saving principle of rinsing.
2. Rinses at 125 yards per minute while maintaining a delivery of from 13 to 57 yards per minute.
3. Automatic controls permit operation with a minimum of labor.

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RIGGS AND LOMBARD

FOOT OF SUFFOLK ST., INCORPORATED LOWELL, MASS.

(Continued from page 262)

if clean, waste-free yarn is expected. Most mills, particularly those on high-quality yarns, clean the rings and rail with cloth, brushes, or compressed air at regular intervals.

The relative production qualities of round- and square-pointed travelers are still debated. Generally, the proponents state that the square-pointed traveler has an advantage on coarse and medium counts of cotton yarn, and that the round-pointed traveler has the advantage of reduced drag on the ring when used on fine cotton counts.

There are also many special forms and designs of steel-clip travelers. Each of the variations has support from mills which claim that the innovation has advantages over the conventional shape. Actual trial of these travelers under operating conditions is the only method by which their value can be determined.

Wool-Card Feed

(Continued from page 145)

The Magnepoise, invented by G. Noble Willis, of the Arthur Russell Engineering Co., basically determines the amount over or under desired weight of the fiber load in each weighing as measured by the resultant position of the scale beam, and applies a corresponding correction in weight to the next load. The effect is elimination of the downward trend in delivered weights usually caused by the decreasing amount of stock in the supply hopper and smoothing of the peaks between loads normally found on conventional machines.

INSTALLATION. The Magnepoise consists of two units, as shown in Fig. 1. The smaller unit, called the magnet assembly, is an aluminum box 8x4x4 in. The larger unit, the control cabinet, is a steel box with a cast-aluminum cover, and measures 18x14x8 in. The magnet assembly is mounted on the feed box and serves to indicate the position of the scale arm at all times. It also exerts force as required on the scale arm.

The installation of the Magnepoise unit on a conventional feedbox as at Broad Brook is shown diagrammatically in Fig. 3. The magnet assembly is mounted on the side of the feedbox and attaches to the scale arm as shown. The control cabinet may also be mounted on the side of the feedbox, but it is usually mounted on the wall or on a convenient post. An electric cable connects the control cabinet with the magnet assembly. The trip switch

(Continued on page 270)

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is a printing thickener for vat colors that will produce the optimum color value at low cost. It is a smooth, free-flowing paste, suitable for the printing of small objects and large blotches as well.

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static inhibitor for wool and blends with synthetic fibres. Efficiently eliminates static with no extra operations or equipment.

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a penetrating oil for dyeing. Also for sanforizing where maximum rewetting properties together with absence of gumming tendencies and complete resistance to discoloration and oxidation are required.

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Brytex Spun Size O

a highly soluble gum for sizing spun yarns including blends of acetate and rayon fibre. Maintains a penetrated strong pliable protective coating for the yarn that reduces shedding and warp breaks.

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a plasticizing lubricant for cotton, spun rayon and filament yarn sizing. May be used along with starch, gelatine and similar sizing materials. A concentrated material that will show greatest economy. A highly soluble oil that has proved very workable in the slashing room.

Brytex Hygel

a high gel strength size for filament yarns. A concentrated dry size, non-foaming. Dissolves quickly and completely. Absence of impurities or adulterants facilitates size removal and finishing.

Brytex Sizing Binder

an adhesive and penetrating dry gum for cotton warp sizing. Increases size penetration, reduces shedding. Fully concentrated. Easy to weigh or measure, economical.

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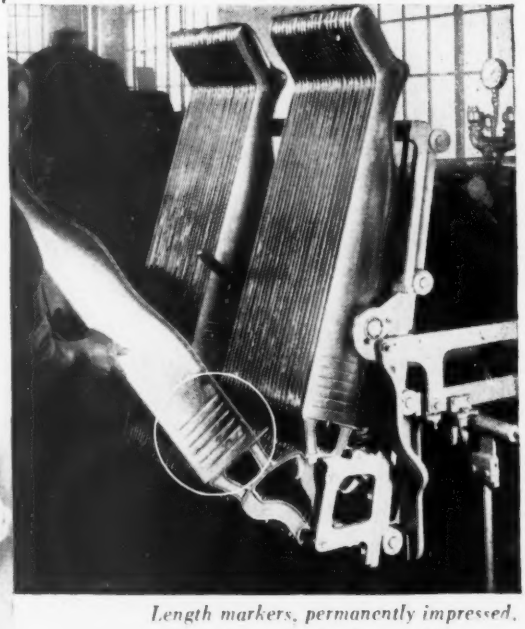

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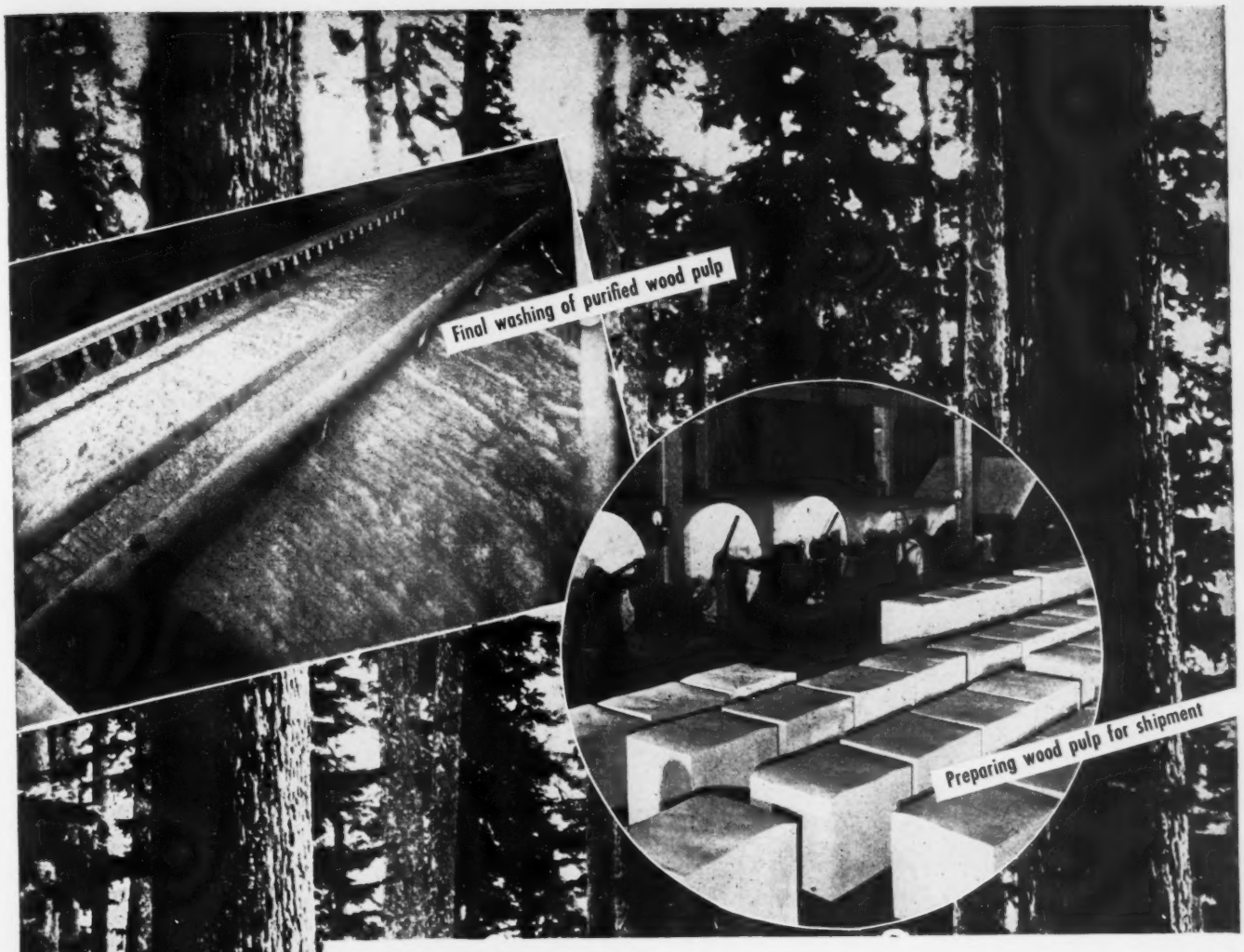

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Uniform quality, a feature of Rayonier pulps, has been obtained by special processes and equipment, knowledge of the required properties and careful control of operations. That is why Rayonier pulps are the best today — why they will be even better tomorrow.

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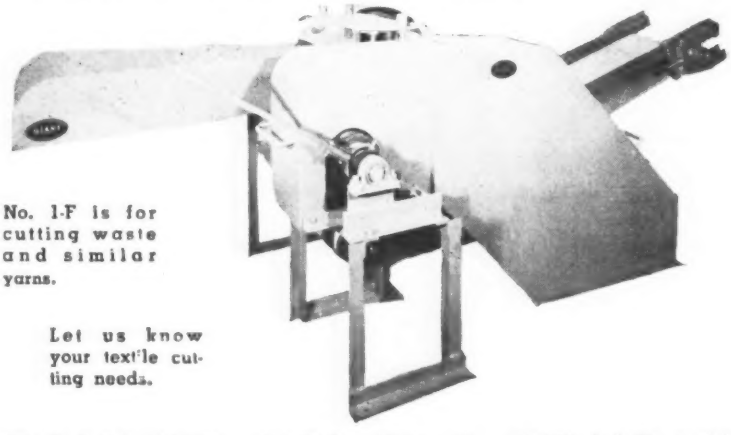
Other types of cutters, for wet or dry cutting, are used where uniform length of cuttings is required, as in making rayon staple, used by many of America's leading yarn manufacturers and textile mills.



No. 1-F is for cutting waste and similar yarns.

Let us know your textile cutting needs.

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(*Continued from page 266*)

in Fig. 3 is a limit switch activated by the timing gears of the feed once for each feed cycle.

The device can be adapted to feeds tripped by a mechanical clutch or by an electric motor.

OPERATION. On the control device as installed in the two New England mills are two electric bulbs, one on the left and one on the right side of the reset button. If there is a light load in the weighing pan, the left bulb is lighted. When the next load drops into the weighing pan, the right bulb is lighted, indicating that the load is heavier to level out the previous imperfection. Through operation of the pushboard on the feed table, the two weighings will be evened out and the roving will be as even as is necessary to obtain an even yarn. If the loads in the weighing pan are continuously within permissible limitations, no light signal will appear. If imperfections occur in successive weighings, a red bulb in the reset button will be lighted, indicating that something is wrong with the weighing mechanism; and the card must be stopped and the cause of the trouble determined.

RESULTS. Some of the results noted in operation at Broad Brook Woolen Co. are shown in Figs. 4 and 5. On both old and new feeds, variation of weighings was held within 1% regardless of the amount of wool in the hopper. Uniform weighings from the feed enable accurate control of yarn weight at the earliest stage of processing. Use of the device also eliminates dependence on constant manual efforts to maintain an even hopper level as a means of producing uniformly consistent weights per dump. The effect of varying amounts of stock in the hopper is eliminated, and the device can be used to sound an alarm or operate a shut-off in the event the hopper becomes empty or if the weight delivered varies more than a pre-set amount.

India's Textile Industry

(*Continued from page 112*)

changes or improvements in methods. In return, Skenandoa is to be paid 6% of the total cost of the plant, with a minimum fee of $250,000. Of this, $150,000 is to be in the form of a cash payment and the balance in fully paid ordinary shares, of which 14,000 with a value of 100 rupees each have been provisionally reserved.

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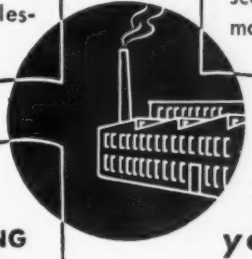

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Olate provides exceptional freedom from these common trouble makers—uneven shrinkage, streaks, dye blotches, and chafe marks—because of its rapid wetting out, gentle cleansing action, and excellent lubricating properties. Olate can do much to guard against costly, wasteful tie-ups and rejects.

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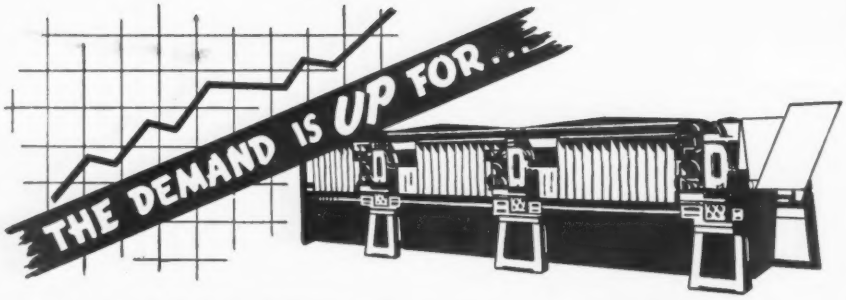

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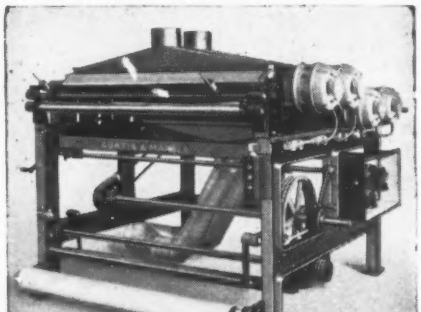

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Thakurdas, a director of the Reserve Bank of India and president of the East Indian Cotton Association. Members include Sir Ardeshir R. Dalal, a director and partner in Tata Sons, Ltd., and long a leading figure in Indian industrial planning; Walchand Hirachand, chairman of the large Premier Construction Co. and of the Scindia Steam Navigation Co.; Kasturghai Lalbhad, major Ahmedabad mill owner and member of the Indian Textile Control Board; A. D. Shroff, another Tata director and non-official delegate to Bretton Woods; and Sir Manilal B. Nanavati, a former deputy governor of the Reserve Bank of India.

A $6,500,000 rayon plant which will use bamboo as its raw material has been scheduled by the government of Mysore State, in southern India, on the basis of plans worked out by the State's Forest Research Laboratory and the Director of Industries. The state-owned plant will draw its power from extensive hydroelectric developments now under way. Officials estimate its operation will absorb all the engineers and chemists that the state educational institutions can produce for the next 10 yr.

Of the four rayon plants for which plans have been announced, none is expected to be in production before 1948.

Acting for a government panel, Oscar Kohorn & Co., New York, prepared a survey of rayon industry possibilities in India. Viscose process was recommended in ten-ton daily units and 11 sites were designated as suitable. Consideration was given to use of Japanese machinery acquired by way of reparations.

The need for local rayon is indicated by the figures on India's imports in Table III.

CHEMICALS SHORT. In the processing fields, India is very short. A grandiose plan for development of an indigenous dyestuffs industry still remains only a dream, while dyes continue to be a major import item. Her chemical industry still has to meet her bleaching-powder needs, while the food requirements of the country have brought a cutback in the meager amounts of corn available to the starch industry, which is begging that it be allowed to produce at least 50% of the country's requirements for 50,000 tons annually. Research has been ordered into the possibility of combining a tamarind-seed starch with corn starch, following assertions by starch makers and mill owners that the tamarind product is not a satisfactory substitute from either a textile or a profit point of view.

(*Continued on page 275*)

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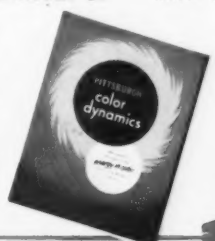

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(Continued from page 272)

WOOL AND SILK. The wool and silk divisions of the industry are pigmy compared to cotton, and are likely to remain so. Neither has the organization or integration, nor are they as important to the country economically. Output of wool goods for clothing is expected to be about 11,340,000 lb. in 1946-47, more than 7,000,000 lb. short of requirements. Silk weaving, up to some 1,000,000 lb. last year, is expected to fall off sharply as India again begins exporting her raw silk and cocoons to countries where handling methods are better advanced. She still lacks a unified sericulture program and careful grading system.

With proper renovation and modernization of equipment, the Indian wool mills will be in a position to compete successfully with foreign producers, members of the Wool Survey Mission of the International Wool Secretariat have told Indian interests.

Making a ten-week survey of the Indian wool division of the industry, members of the mission have reported that they are favorably impressed both with the technical progress made by mills and with the skill displayed by handloom weavers. Given better tools, and with instruction based on facilities which the secretariat can make available, they said, India can go far toward satisfying her own extensive wool requirements. India's wool division prewar consisted of only about 40 mills with a combined total of some 70,000 spindles and 2,000 looms.

IMPROVE RAW SILK. A program to lift India from her low position in the world silk picture and produce about one-quarter of her requirements at the end of 15 yr. has been proposed by a panel of experts appointed by the Indian Government to survey the industry's shortcomings. The government will take the lead through the establishment of rigorous standards to improve the quality of the silk filament and assure its uniformity. India would be divided into a northern and southern zone, and a spun-silk mill established in each zone to purchase and handle all the silk waste in their respective areas. Export of silk waste by individuals would be prohibited, and the mills would become the sole agents for this trade.

The panel estimates that under a concentrated expansion program India could reach the point of producing about 4,000,000 lb. of silk at the end of 15 yr. And this would be possible only by greatly expanding the mulberry acreage, organizing seed manufacturers, forming regional associations of filatures and mills, and establishing

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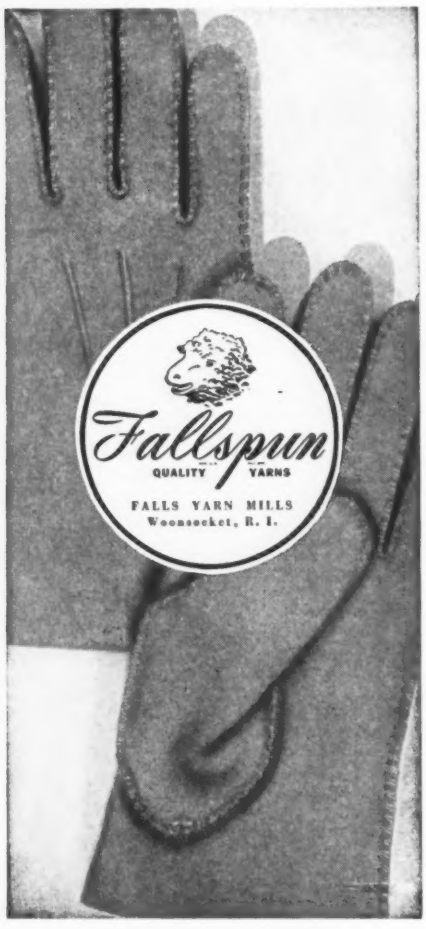

a strong association of silk merchants.

This expansion program, however, would still fall far short of meeting India's needs. In a constantly rising level of prosperity, it is estimated India will require some 15,000,000 lb. of silk at the end of 15 yr.—not a great rise from the 10,250,000 lb. consumed in 1938, the last pre-war year, when only 1,500,000 lb. was produced in India and 2,250,000 lb. of raw silk and 6,500,000 lb. of manufactured silk fabrics were imported.

The panel suggests that part of the cost could be met through the sale of Japanese silk which will accrue to India in the form of war reparations. Incidentally, this silk now represents a threat to the Indian industry, being priced as it is at the current New York market level of $5.00 per lb. compared with the $8.70 per lb. price paid by the Indian Government during the war. If the Japanese silk were sold by the government at the current Indian price, the panel feels, a good development backlog could be built up.

Among the present weaknesses of the Indian industry, it is pointed out, are: low yield of Indian cocoons (Mysore pure-breed cocoons, for instance, produce 1 lb. of silk for each 16 lb. of cocoons, compared to the Japanese level of about 1 lb. of silk to less than 12 lb. of cocoons); relatively high cost of mulberry feed; lack of modern scientific equipment; lack of grading; failure to utilize waste.

Improvements called for are: organization of multi-purpose cooperative societies, control of silkworm diseases, increase in number of conditioning houses, betterment of labor conditions, centralization of sericulture research.

MOSLEMS TURN INDUSTRIAL. Backed by the All-India Moslem Chamber of Commerce and Industry, the official spokesman for Moslem business in India, an organization has been formed to lift that religious community out of the economic doldrums in which it has idled for so long. Titled the Moslem Industrial Institute, Ltd., it has received government approval for a $750,000 capitalization, most of which is to be taken up by chamber members.

Purpose of the institute is to act as managing agents for an entire syndicate of industries which Moslem capital hopes to attract to India—mainly from America—by offering generous profit participation in return for capital goods and technical assistance. The Moslems have remained aloof from industry in the past; but now, with India on the threshhold of an industrial boom, they want to take a fair

(*Continued on page 280*)

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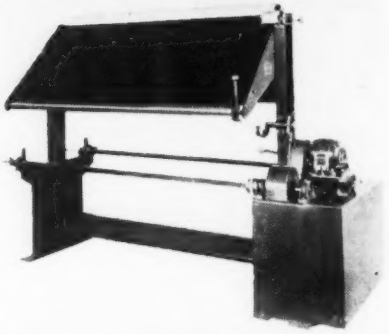

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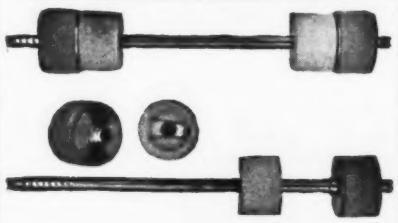

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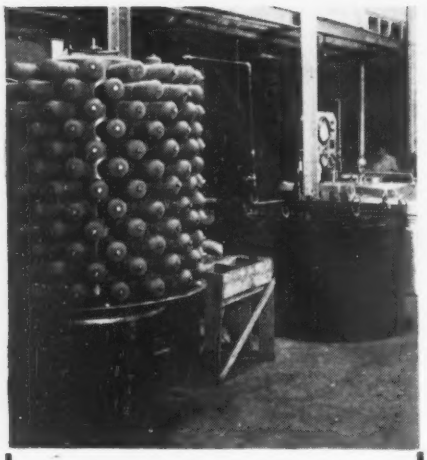

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share of the expansion, and supply Moslem workers with employment by industrialists of their own community. Among the expenditures planned are $150,000 for rayon weaving and $30,000 for carpet making, but these sums are envisioned as only the "primer" for great future expansion. The institute is prepared to offer up to 50% share participation to foreign interests which can supply equipment and "know how." The current Indian trend seems to be toward boosting all industries and curtailment of imports of consumer goods, hitherto a big Moslem field.

Moslems hold the cabinet posts of commerce and of finance and presumably would give full audience to pleas for import licenses and currency releases which spring from their fellow religionists. Despite the Pakistan movement, the institute is prepared to establish its new industries on strictly business grounds—with the question of markets, labor supply, raw materials, and transport costs taking precedence over any politico-geographical considerations.

COTTON SURPLUS HURTS. Faced with a steadily-increasing raw-cotton surplus due largely to a muddled production situation, Indian cotton dealers are making plans to re-enter the export trade along lines followed prewar when export averaged about 500,000 tons annually.

Despite the country's great need for textiles, mill consumption is expected to fall to about 3,200,000 bales from the average 4,000,000-bale consumption. The cotton crop, which formerly was augmented by heavy imports, is expected to run to approximately 3,800,000 bales, however, leaving a 600,000-bale surplus.

Prior to the war, India was a big exporter of long-staple cotton to Japan, averaging annual shipments of between 1,500,000 and 2,000,000 bales. Now a delegation of Indian cotton dealers, sponsored by the Central Government, are bound for Japan to see what can be done to resume at least a portion of this trade. They hope that export of the surplus cotton will bring to India return shipments of both machinery and cotton textiles—both in great demand.

Meanwhile, it has been revealed that up through the end of April 119,067 bales of cotton were licensed for export, most of it from the port of Karachi. Nearly 60% of the shipments were long-staple cotton.

Despite recent efforts India has yet to develop a large long-staple cotton crop. The 1944-45 crop was estimated at 708,600 tons; imports totaled 89,-

(*Continued on page 284*)

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ANALYSIS

Sodium Sulfide	60 to 62%
Sodium Chloride	1.5% Max.
Other Sodium Salts	2.0% Max.
Iron	8ppm. Max.
All other metals	1ppm. Max.
Water of Crystallization	36.5 to 34.5%

HOOKER ELECTROCHEMICAL COMPANY

4 Forty-Seventh St., Niagara Falls, N. Y.

New York, N. Y. Wilmington, Calif. Tacoma, Wash.

HOOKER CHEMICALS

7-353

Caustic Soda **Muriatic Acid** **Chlorine**

Paradichlorbenzene **Sodium Sulfide** **Sodium Sulfhydrate**

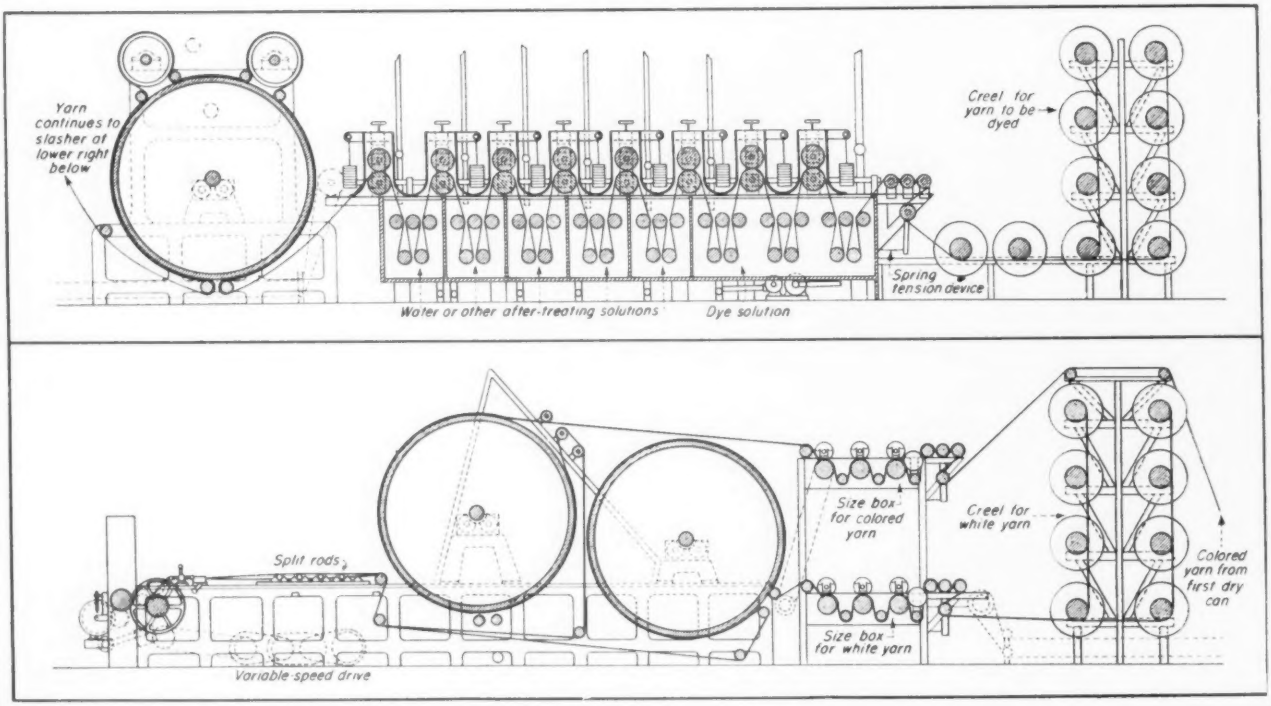
UNISTEL

A New Machine for—
CONTINUOUS DYEING, SLASHING, BEAMING OF COTTON YARNS

Starting from a section-beam creel, the yarn makes three immersions in direct or sulphur dye solution, then passes through several washings and other tanks for necessary after-treatment. Provisions can also be made for use of vat dyes. After dyeing, the yarn passes over a drying cylinder, and goes to a three-immersion-roll size box, over a drying cylinder, through split rods, onto a loom beam. The machine provides an additional creel for use in slashing all-white warps, or for warps requiring both colored and white yarns, as tickings.

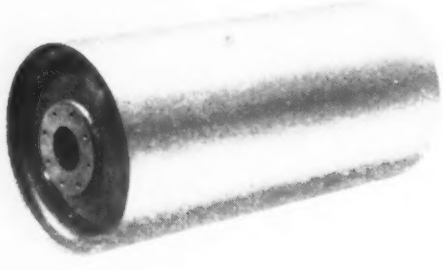
2,700 ends of 9s yarn can be processed through the entire machine at the rate of 25 to 30 yd. per min., and similar speeds are possible for other yarn and warp sizes. A prototype of the machine has been in successful and efficient operation in a Canadian mill for 7 yr.

All nips and immersion rolls are power driven to prevent stretch and breakage. The manufacturer can adapt the dyeing unit to slashers already installed. Floor space required is about 90 ft. by 10 ft. Complete details and inspection of an operating unit can be arranged at your request.


Yarn continues to slasher at lower right below
Creel for yarn to be dyed
Spring tension device
Water or other after-treating solutions
Dye solution
Size box for colored yarn
Creel for white yarn
Colored yarn from first dry can
Split rods
Size box for white yarn
Variable-speed drive

The machine shown diagrammatically above in two sections is normally a single, continuous machine 90 ft. long. It dyes, sizes, and beams cotton yarns in one process at 25 to 30 yd. per min.

STAINLESS STEEL DRY CANS



All welded stainless steel dry cans with reverse dished heads constructed to the A. S. M. E. unfired pressure code for 35 pounds steam working pressure.

When you buy a Stainless Steel Cylinder Dryer of any type, you are investing in high priced equipment from which you expect a definite return for many years. In order to realize your expectations, buy stainless steel quality.

Engineers — Designers — and Builders of Back Dryers, Can Dryers, Slashers, Kettles, etc,

UNITED STEEL of AMERICA, INC.

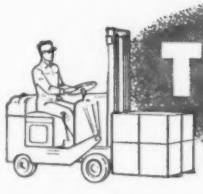
30 ROCKEFELLER PLAZA
NEW YORK 20, N. Y.

Canadian Representatives: United Steel Corporation Ltd. of Canada, Toronto

FREE Warehouse Space Available

Right in your present buildings there's an "extra warehouse," ready and waiting to be put to use. It's the wasted overhead storage space that Towmotor Fork Lift Trucks and Accessories can convert into useful, profitable warehouse area. Swift, safe high-stacking of commodities with Towmotor can double, or triple existing warehouse capacity without increasing the amount of floor space. To learn how Towmotor puts *all* the warehouse space to work, send for a Pocket Catalog. Towmotor Corporation, Division 22, 1226 East 152nd Street, Cleveland 10, Ohio.

SEND FOR SPECIAL BULLETINS DESCRIBING THE **TOWMOTOR** REVOLVING CARRIAGE • SIDE SHIFTER UNLOADER • UPENDER • SCOOP • CRANE ARM • EXTENSION FORKS • EXTENSION BACKREST • RAM • OVERHEAD GUARD



TOWMOTOR *THE ONE-MAN-RAMS*

FORK LIFT TRUCKS *and* TRACTORS

RECEIVING • PROCESSING • STORAGE • DISTRIBUTION

Reelfoot
HIGH QUALITY YARNS

Speeder and ring spun, all sizes to 14's single and plied. Natural or Dyed.

CUSTOM MADE—
CUSTOM PUT-UP
TO YOUR
PARTICULAR
SPECIFICATIONS

Our flexible methods of operation assure your requirements. Tell us your needs and we will meet them promptly.

HYDE PARK MILLS, Inc.
Covington, Tenn.

"SPECIALISTS IN ENGINEERED SERVICE"

(Continued from page 280)

717 tons, mostly Egyptian long-staple. Agricultural experts are pressing hard to widen irrigation and fertilizer programs which have raised India's yield-per-acre to 122 lb.—low in comparison to Egypt's 515 and America's 293, but a tremendous advance from the 96 lb. that was the 1922-27 average.

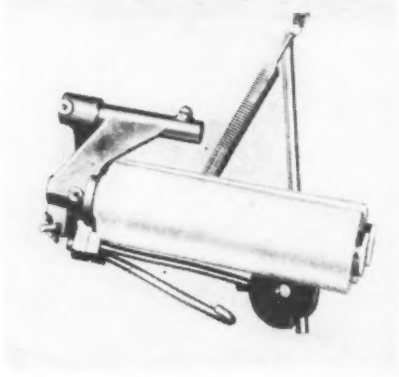
PRICE CONTROL. The cotton crop is under rigid government price control with a floor of 400 rupees (about $123) per candy of 784 lb. and a ceiling of 530 rupees (about $190). Actually, however, government trading regulations, carrying charges, etc., have brought about a contract price of about 450 rupees, while prices are based on the ceiling.

Proponents of a ceiling increase point out that a New York cotton price of 31¢ per lb. is equivalent to 809 rupees per candy, representing an injustice to Indian cotton growers. They claim that an increase to 650 rupees would benefit growers, put Indian cotton on more of a realistic level, and make the cost of cotton to the mills about 550 rupees—the level at which prices are based.

Interesting from a world-trade standpoint is the emergence of Indian waste cotton (and raw short-staple cotton) as an export commodity. With other countries having better equipment for using this in cotton blankets, etc., and in combination materials, India has been stepping back into the role of a supplier, having exported 28,011 bales in 1943-44; 15,495 bales in 1944-45; 143,064 bales in 1945-46, and probably over 200,000 bales in 1946-47.

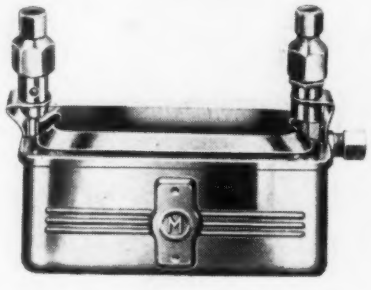
Textile Equipment News (Continued from page 180)

Guider and Opener



The swing guider and opener of the Mt. Hope Finishing Co., Taunton, Mass., has been improved by using stainless steel throughout. The result, it is claimed, is a stronger and lighter frame; lighter, corrosion-proof rolls which are hardened and ground, and generally longer-life and lower upkeep.

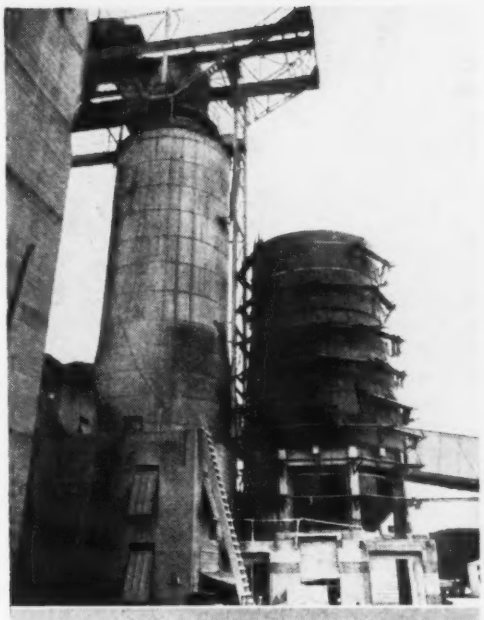
Humidifier Atomizes ¾ to 5 Gal. per Hr.

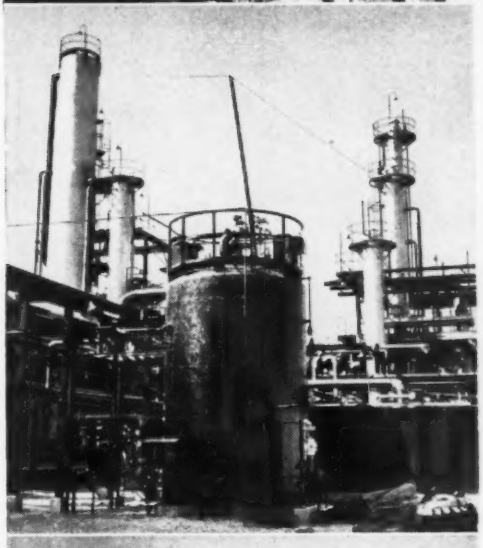


The "Atomick" humidifier has been introduced by Maid-O-Mist, Inc., 3217 No. Pulaski Rd., Chicago 41, Ill. Supplied in four sizes, the humidifiers will atomize from 0.75 to 5 gal. of water per hr. depending on the unit used. Designed especially for operation in conjunction with unit heaters, the humidifiers may be installed to operate simultaneously and constantly with unit heaters, or may be humidistatically controlled. Other applications, as in offices, are also possible.

Measures Static

A portable, self-contained instrument for locating and measuring static electricity has been announced by Davis Emergency Equipment Co., 250 Halleck St., Newark, N. J. It is claimed that the meter of this instrument, calibrated in terms of static volts, is sensitive enough to detect and measure static changes to fractional volts over a range of 0 to 750 volts, either positive or negative.





RUSH!

Yes, Wyandotte is rushing its $25,000,000 expansion program to provide more of the chemicals you need

DON'T let these pictures fool you! They were taken early last July—and we've been moving fast since then.

We're going FULL SPEED AHEAD on our huge expansion program to produce more alkalies, more chlorine, synthetic detergents and glycol products.

It's a big job—but it's moving right along. The tremendous demand for some Wyandotte Chemicals still exceeds our production. But the day is coming when we'll have enough of everything for everybody. Meanwhile, we're allocating the available supplies as fairly as we know how.

Why not let us know your needs? We'll do our best to fill them.

WYANDOTTE CHEMICALS CORPORATION

WYANDOTTE, MICHIGAN • OFFICES IN PRINCIPAL CITIES

Soda Ash • Caustic Soda • Bicarbonate of Soda • Calcium Carbonate • Calcium Chloride • Chlorine • Hydrogen • Dry Ice • Glycols
Ethylene Dichloride • Propylene Dichloride • Chloroethers • Aromatic Sulfonic Acid Derivatives • Other Organic and Inorganic Chemicals

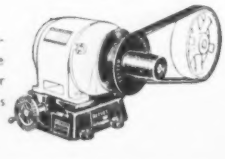
Wyandotte
REG. U. S. PAT. OFF.

WHEREVER PRODUCTION CONDITIONS VARY, THERE'S NEED FOR REEVES SPEED CONTROL

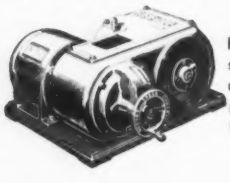
Above: This woolen shear, manufactured by Curtis & Marble Machine Co., Worcester, Mass., brushes and shears the nap, thereby clearing up the pattern and producing a smooth, even surface on woolen and worsted cloth. By means of the REEVES Motodrive, with which the machine is standardly equipped, the operator can obtain instant and accurate changes in operating speed—from 20 to 50 yards per minute—to take care of variations in the type of cloth handled and to obtain maximum production.

THE 3 BASIC REEVES SPEED CONTROL UNITS

VARIABLE SPEED TRANSMISSION for providing infinite, accurate speed flexibility over a wide range—2:1 to 16:1. Sizes—fractional to 87 hp.



VARI-SPEED MOTOR PULLEY provides an instantly variable speed drive within 4:1 ratio for any constant speed motor. Sizes to 15 hp.



MOTODRIVE combines motor speed varying mechanism and reduction gears in single compact unit. Speed variations 2:1 to 6:1 inclusive. Sizes to 15 hp.

● If your textile processing problems include the handling of yarn or cloth of varying texture, weight or moisture content—or any operation affected by temperature, humidity or operator's skill—then there's a place in your mill for REEVES Speed Control.

For, on all types of production jobs, under every changing condition, REEVES Variable Speed Drives provide the stepless *speed adjustability* that irons out the peaks and valleys in your output curves . . . assures uninterrupted production of uniform, improved quality—at lower manufacturing cost!

This has been the experience of leading textile manufacturers everywhere, when REEVES Speed Control comes on the job—on beamers, warpers, slashers, dry cans, mangles, dryers, nappers, range finishers and many other textile machines. The REEVES line of performance-proved speed control equipment includes three basic units, each of which is furnished in a wide range of sizes, designs and speed ratios—with manual, hydraulic, mechanical or electric remote controls. Have a REEVES field engineer call soon to help you select the units best suited to your particular requirements. Write for a consultation now, and ask for the 114-page catalog, W-450A, giving full particulars on the complete REEVES line.

REEVES PULLEY COMPANY • COLUMBUS, INDIANA

Accurate Variable

REEVES Speed Control

Gives the Right Speed for Every Job!

PNEUMAFIL*

means

Improved yarn quality

Increased production

Lowered costs

. . . and the Spinners like it!

IMPROVES YARN QUALITY

Eliminates "wild" or flying ends and spinning doublings; decreases slubs, gouts, fly and end piecings.

LOWERS LABOR COSTS

Reduces ends down; reduces time of putting up an end; decreases all cleaning in general, thread boards and roller beams in particular.

IMPROVES WASTE SALVAGE

Waste machine processing is eliminated, thus preserving fibres intact, saving power, reducing handling and transportation; reduces threads in waste; no "white" waste on floor.

BETTER RUNNING WORK

No fly-overs; no "balled up sides"; less broken fibres in re-worked "white" waste; better air conditions.

Learners Training Cost Reduced

An operation is eliminated; work spoilage by learners lessened; less "teacher time" required.

INCREASES PRODUCTION

Less ends down; fewer steel and top roll laps; no stoppage because of "balled up sides"; increased winder or spooler production due to less gouts, slubs, and fly in yarn.

WRITE OR WIRE FOR FULL INFORMATION

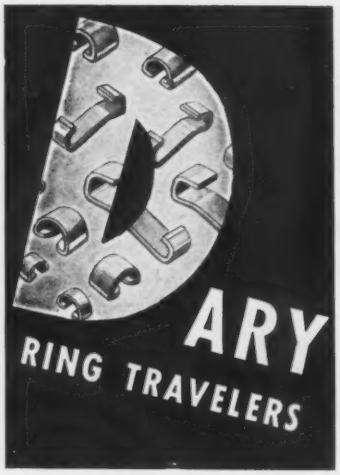
INQUIRIES FROM SOUTH AMERICA AND CONTINENTAL EUROPE Should Be Sent To:

LUWA, S.A., Zurich, Switzerland

(CABLES: LUWAG ZURICH)

* Reg. Trade Mark

☆ Pneumafil Corporation ☆ ☆ Charlotte 6, N.C. ☆



"RINGMASTERS"
of
Spinning
and
Twisting

Familiar to mill men everywhere, in or out of their blue tin, these travelers are made by Dary methods and to Dary standards for every count and twist of yarn.

Dary Dependability is more than a phrase to remember. It is a truth that has been experienced by many spinners and twisters. They know Dary means top performance at maximum spindle speeds because of the better wearability and constant uniformity of weight of Dary Ring Travelers.

Call in the friendly Dary Representative nearest you. He can explain more fully and show you clearly how and why the Dary Ring Traveler is a textile industry "ringmaster."

DARY
PROCESSED
SYMBOL OF SUPERIORITY

The DARY RING TRAVELER CO.
TAUNTON, MASSACHUSETTS
JOHN E. HUMPHREYS, BOX 843, GREENVILLE, S. C.
JOHN H. O'NEILL, BOX 730, ATLANTA, GA.
H. REID LOCKMAN, BOX 815, SPARTANBURG, S. C.

LABOR-MANAGEMENT
Forms Council in Philadelphia

HIGHLIGHTS: *Dr. George W. Taylor is chairman of council with six management and six labor representatives—Council has seven major objectives in settling local disputes without government intervention.*

FORMATION of an organization for the voluntary settlement of labor-management disputes without recourse to government intervention has been established in Philadelphia as a means of preserving industrial peace in that city. Its operation will be watched with interest in other textile centers.

Known as the Philadelphia Mediation Council, it consists of an advisory and policy-making board of six management and six labor representatives and a panel of mediators chosen by the two groups. The council was formed by the Chamber of Commerce of Philadelphia and the Philadelphia Industrial Union Council (CIO) to handle "local disputes by local people." American Federation of Labor affiliates have been invited to join. There are several textile men on the council.

Representing management on the council are William L. Batt, president of SKF Industries, Inc., and former vice chairman of the War Production Board; Joseph G. Pew, Jr., vice president, Sun Shipbuilding & Drydock Co.; Joseph Schmitz, president, Universal Dye Works; Emery W. Loomis, regional manager, Westinghouse Electric Corp.; Clement V. Conole, general manager, and Rudolf F. Vogeler, manager of the Industrial Council, Chamber of Commerce.

Labor representatives are Michael Harris, president of the Industrial Union Council and district director of the United Steelworkers; Joseph Hueter, Textile Workers Union of America; Charles Weinstein, Amalgamated Clothing Workers; William M. Leader, American Federation of Hosiery Workers; Joseph B. Dougherty, Transport Workers Union; and James Price, United Electrical, Radio, & Machine Workers.

Dr. George W. Taylor, professor of industry at the University of Pennsylvania, former chairman of the National War Labor Board, and experienced by many years of service in labor disputes, is chairman of the mediation council.

Members of the council declared they are of the opinion that differences between employers and employees can best be reconciled by discussion between representatives of labor and management without intervention by local, state, or federal agencies; but they point out that the organization is for mediation only and not arbitration.

Aims and objectives of the council are:

1. To avoid strikes and lockouts through the most effective use of mediation.
2. To develop understanding and cooperation between management and labor through the mediation of friendly discussion and frank conference.
3. To observe the law as the charter by which the rights of all citizens are assured.
4. To advance the interests of the public through effecting industrial harmony by the use of voluntary procedures in handling labor-management problems.
5. To recognize and preserve the fundamental rights of labor to organize and to engage in collective bargaining with management. Through the acceptance of collective bargaining, differences between management and labor can be disposed of between the parties by peaceful means, thereby discouraging avoidable industrial strife.
6. To recognize and preserve the inherent right and responsibility of management to direct the operation of an enterprise.
7. To observe contracts, collective bargaining or otherwise, without equivocation or evasion.

In the event of a deadlock, either party may bring an existing or impending dispute before the council which, however, can proceed only with the consent of the disputants. The council will then select mediators who will attempt to have the parties negotiate an agreement. Where mediation fails, council representatives will analyze the facts and make recommendations as a basis for further opportunity to reach an agreement. If settlement is not achieved by the first two steps, the council representatives will explore the possibility that the parties voluntarily submit disputed issues to arbitration.

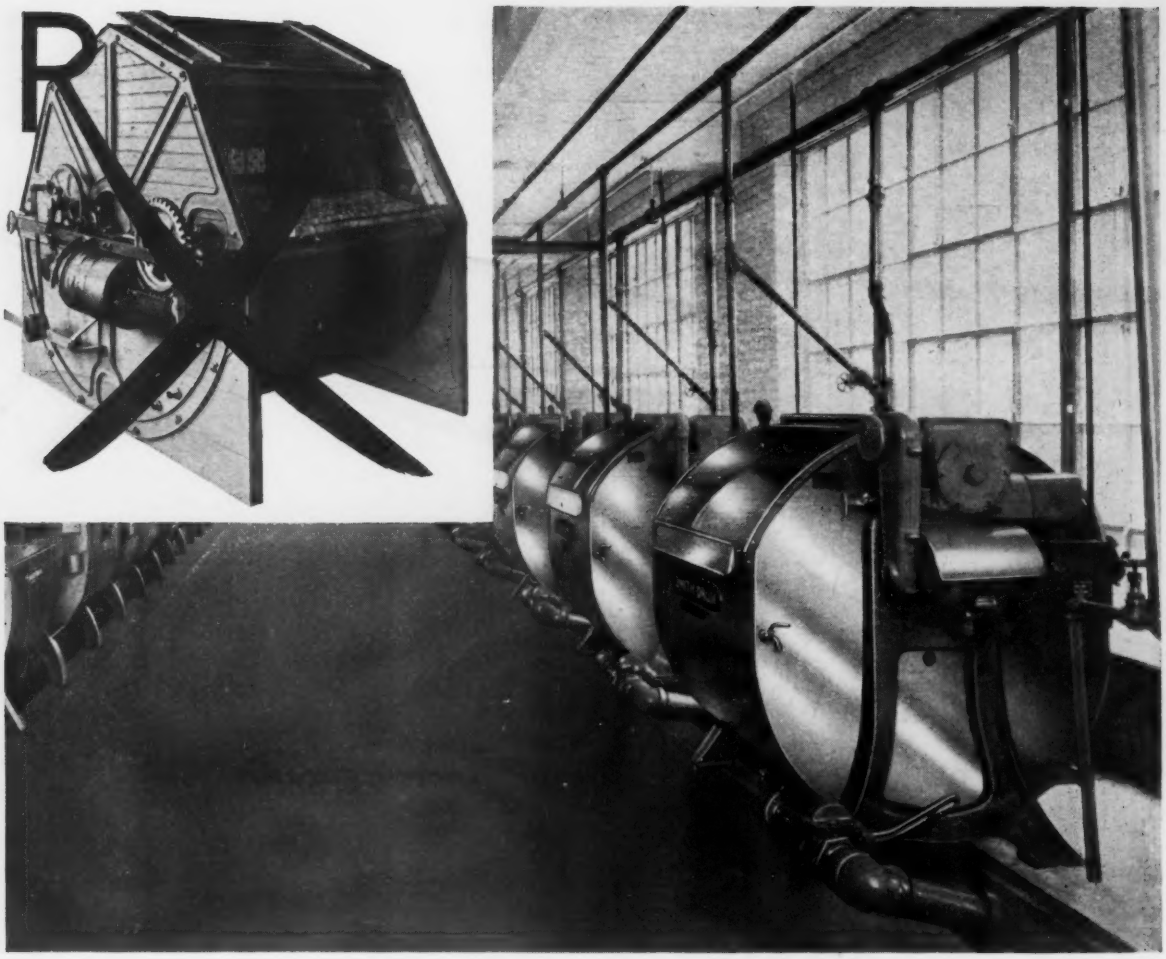
mused the Soap Sleuth, puffing on his meerschaum. "I was working on a new soap in my 31st Street laboratory, when suddenly I heard . . .

". . . a violent rapping on my door! A mill manager hurried into my office, moaning about strange blotches, streaks and stains! I rushed over to search for clues . . .

"I had never seen a more modern mill. The sequence of operations was about perfect. But one look through my trusty glass showed the trouble. 'Sir', I said, 'You need *Armour's Texscour*, the low-titer, red oil base soap!'

"You see, TEXSCOUR, the 8-12° titer flake soap, was the answer in this case. TEXSCOUR really penetrates . . . assures complete removal of oils, dirt, and waxes from all textile fibers! That mill manager now gets his scouring jobs done right. Re-runs and do-overs are a thing of the past! Incidentally, TEXSCOUR is but one of a number of soaps made by Armour for the textile industry. I'm always glad to recommend the soap best suited to the specialized needs of any textile mill."

Armour
INDUSTRIAL
Soap
Armour and Company, 1355 W. 31st., Chicago 9, Ill.



Prescription for better textile production

Your equipment manufacturer is thoroughly familiar with textile production problems. With his consultants and engineers he has analyzed production methods and machinery in many different types of mills, with the aim of providing equipment designed to do a better job. When he prescribes machinery or parts to meet requirements in *your* mill, remember that his recommendations are based on this wide experience. His chief interest is in helping you produce better textiles at lower cost.

One outstanding example of the improvements he has helped bring about in mill equipment is the use of stainless steel for loom parts, dye vats, bleach tanks and dozens of other applications. Today, stainless equipment is helping many mills turn out more uniform, salable textiles.

Armco supplies many grades of stainless steel sheets, strip, bars and wire for a wide variety of textile uses. Every grade of ARMCO Stainless is solid, rustless metal all the way through. There's no plating to wear off. Even the most delicate yarns and fabrics won't snag on its clean, smooth surface. Furthermore, ARMCO Stainless is highly resistant to the corrosive attack of textile processing chemicals.

Let your equipment manufacturer show you how you can boost production and profits in your mill with equipment made of ARMCO Stainless Steel. Or write The American Rolling Mill Company, 336 Curtis Street, Middletown, Ohio Export: The Armco International Corporation.

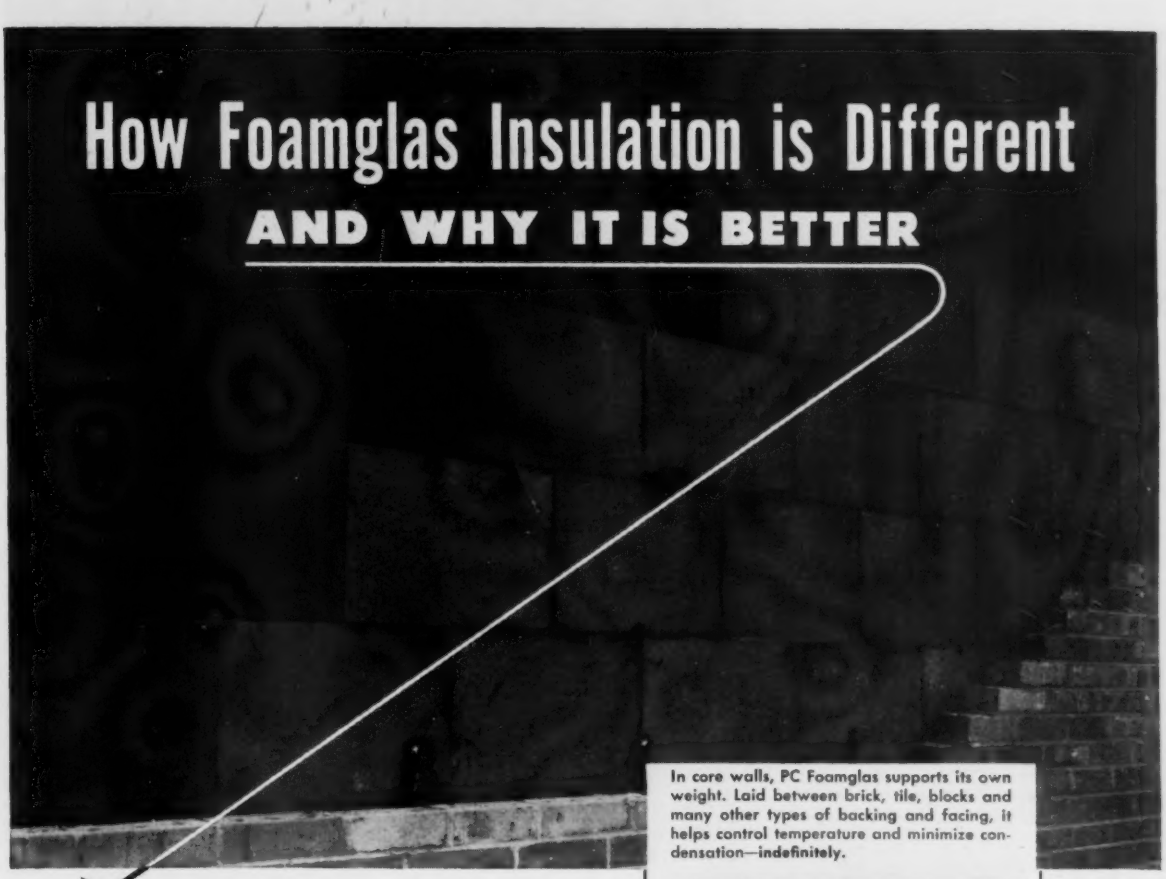
ARMCO

THE AMERICAN ROLLING MILL COMPANY

• SPECIAL-PURPOSE SHEET STEELS • STAINLESS STEEL SHEETS, STRIP, BARS AND WIRE

How Foamglas Insulation is Different

AND WHY IT IS BETTER



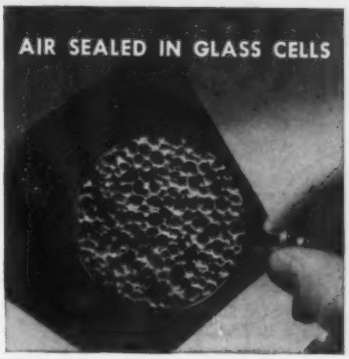
In core walls, PC Foamglas supports its own weight. Laid between brick, tile, blocks and many other types of backing and facing, it helps control temperature and minimize condensation—indefinitely.

PC Foamglas is the only material of its kind. It is not a fiber, not a wool, not a board or a batt. It is literally a foam of glass, solidified into big, light-weight blocks, each composed of millions of minute air-filled glass cells. That is how it is *different* from other insulating materials.

Its unique cellular structure gives Foamglas excellent insulating properties. And since it is glass—and therefore impervious to many elements that usually damage or destroy other insulating materials — PC Foamglas retains its original insulating value *permanently*. That is why it is *better* than other insulating materials.

PC Foamglas has proved its ability to help maintain temperature levels, to minimize condensation, in structures of all kinds, without repairs or replacement due to failure of the material. First cost is last cost when you insulate with PC Foamglas — whether walls, floors, roofs or ceilings. When you insulate with Foamglas you insulate for good.

Why not send the coupon for complete information? Pittsburgh Corning Corporation also makes PC Glass Blocks.



WHEN YOU INSULATE WITH FOAMGLAS . . .

YOU INSULATE FOR GOOD!

FOR ADDITIONAL INFORMATION SEE OUR INSERTS IN SWEET'S CATALOGS.

PITTSBURGH ® PC CORNING

FOAMGLAS INSULATION

Pittsburgh Corning Corporation
Room 475, 632 Duquesne Way
Pittsburgh 22, Pa.

Please send me without obligation, your FREE booklets on the use of PC Foamglas insulation for:

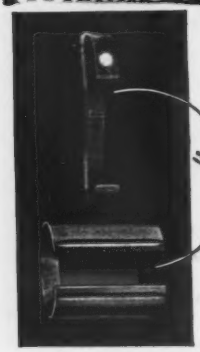
Roofs_____ Walls_____ Floors_____

Name_____

Address_____

City_____ State_____

U. S. RING TRAVELERS



Bevel

Edge

Ideal for BLENDS

Bevel-edge travelers are especially useful in running blended yarns. The exclusive anti-friction design is a great aid in keeping end breakage to the minimum, while at the same time helping smoother running and more uniform tension. Our representative will gladly call and recommend appropriate sizes and weights.

A Style and Size for Every Textile Fibre

"U. S." offers a COMPLETE traveler Service—a complete line suited to every fibre and operation—complete engineering service assisting you in traveler selection and maintenance for maximum spinning and twisting production.

DEPENDABLE DELIVERY
PROMPT SERVICE CALLS

U. S. RING TRAVELER CO.
AMOS M. BOWEN, President & Treasurer
Providence, Rhode Island

"U. S." Men give you Prompt Service!

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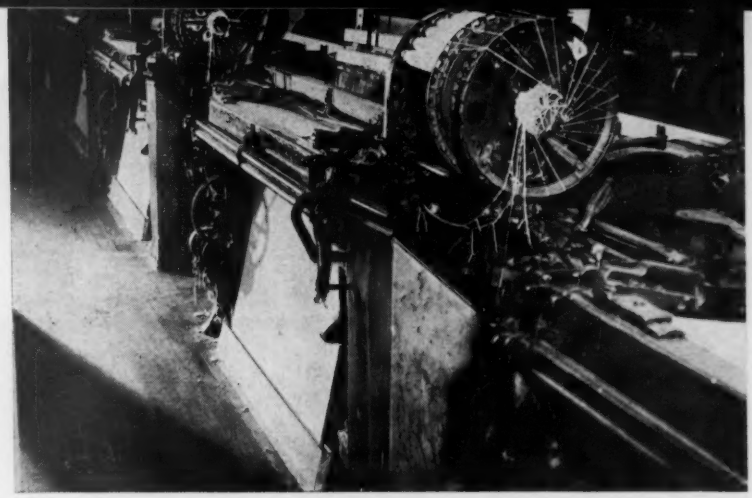
Greenville, S. C.—Box 792—Phone 3031
O. B. LAND,
Athens, Georgia—Box 1187—Phone 478
L. H. MELLOR, JR.
Mid-Atlantic States, 1231 Treaty Rd.
Drexel Hill, Pa.
H. R. FISHER,
Concord, N. C.—Box 83—Phone 8366
C. W. SMITH—H. J. SMITH,
Providence—Gaspee 0100



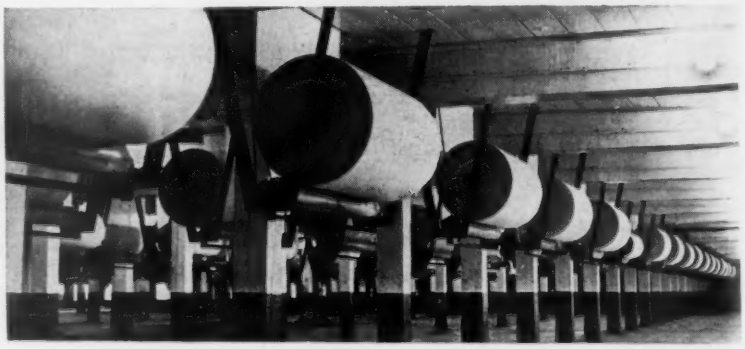
Cloth leaving the take-up roll of each loom at Revolution mills passes through a guarded opening in the floor to rolls located in the basement. These rolls are driven from the loom by a chain-and-sprocket arrangement.

Sewing Eliminated by New-Type CLOTH TAKE-UP

HIGHLIGHTS: *Cloth wound on roll beneath floor—Roving inspectors check for defects as cloth leaves loom—Sewing of short pieces eliminated.*

A NEW CLOTH TAKE-UP DEVICE which eliminates much cloth-room sewing and inspection and reduces time-lag in control of quality has been installed on 300 looms at Revolution Cotton Mills, Greensboro, N. C. Cloth leaving loom take-up rolls passes through the floor and is wound into large endless rolls several thousand yards in length which are suspended at shoulder height. Inspection of the cloth is done by roving inspectors who check the cloth as it passes between the floor opening and the cloth roll. Sewing the ends of 100- to 200-yd. pieces conventionally removed from looms is eliminated, with consequent savings in sewing machines, thread, roll-winding equipment, as well as labor.

Cloth rolls below floor are driven by the chain and sprocket on the take-up roll.



About 300 looms at Revolution mills are equipped with the new cloth take-up device, and it is planned to extend use of the device to all of the mill's 2,000 looms. Cloth is removed by a rolling jack-truck after several thousand yards have accumulated.

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The Starch Stabilizer

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230 Park Avenue, New York 17, N. Y.

WASHER AND DYE PADDER at The Textileather Corp., Toledo, O., utilizes 91 corrosion resistant Inconel covered rolls. Designed by H. L. Perry, plant engineer, for handling automobile upholstery fabric. Capacity 3320 yards per hour. *Fred Christen & Sons Co.*, Toledo, built this equipment in 1940. Inconel covered rolls were fabricated by *The Youngstown Welding & Engineering Co.*, Youngstown, O.

WHEN you need a metal that will stand up in all dyeing processes, investigate Inconel*.

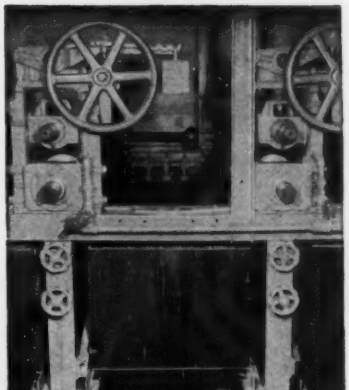
Its 80% nickel content assures resistance to strong alkalies, chlorides and reducing acids; its 14% chromium content prevents harmful attack by many oxidizing acids.

Inconel stands up against all types of dyes . . . acid and acid chrome . . . direct, vat, sulfur and developed colors. It resists corrosion by dilute hypochlorites and by sizing or other compounds and solutions used to impregnate fabrics. Peroxide bleaches have little effect on Inconel, and the alloy itself — unlike many other metals — does not harmfully accelerate decomposition of the bleach.

Having greater strength and toughness than structural steel, and possessing excellent fabricating and welding properties, Inconel makes possible the construction of extremely rugged, long-lived equipment.

Inconel is available in standard mill forms . . . in sheet and strip . . . in rod, bar, plate and tubing. Let's not forget castings, either. They're available, too. And for equipment requiring plate thicknesses of 3/16" and heavier, you can get Inconel-clad steel . . . at a substantially lower price than solid Inconel.

Detailed information on corrosion resistance, mechanical and working properties, and typical uses of this versatile nickel alloy is contained in Technical Bulletin T-7, *Engineering Properties of Inconel*. A copy is yours for the asking. Drop us a line on your letterhead, and we'll see that it's sent promptly. *Reg. U. S. Pat. Off.



CLOSE-UP OF ONE SECTION of the eight-box washer. Welded tank is made of ¼" Inconel-clad steel plate, and contains 7 idler rolls of seamless Inconel tubing, 4" OD x .120 wall x 74⅛" face.

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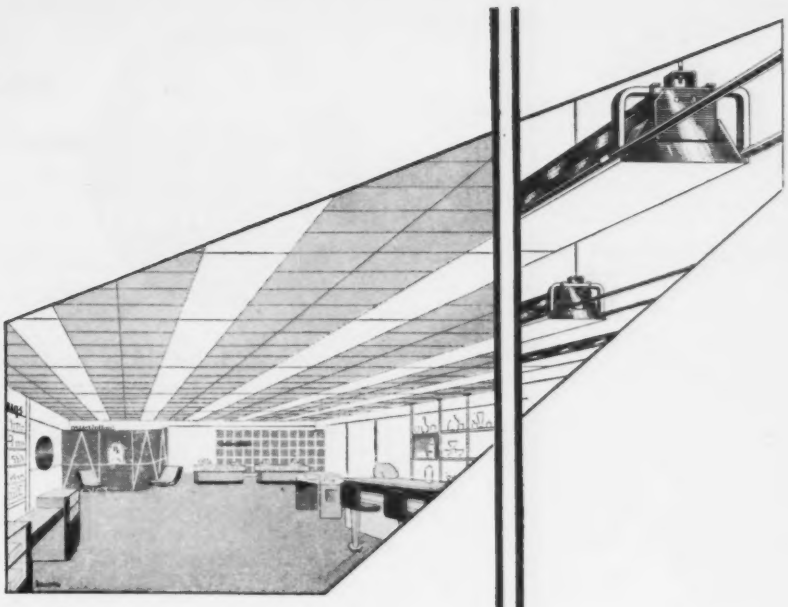

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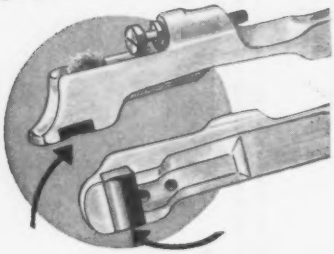

The Dixon LUBRONZE Bearing is a new improvement in the Dixon Lubricating Saddle. It is a bronze insertion impregnated with graphite, oil and other materials, fixed in the saddle at the point where the latter bears on the front roll. Here, where friction causes the greatest wear, LUBRONZE Bearing provides a smooth surface and gives extra protection of reserve lubrication.

With its special reserve qualities, LUBRONZE will not eliminate the need for lubrication, but it takes over the oiling job when unavoidable delays occur. LUBRONZE IS AS GOOD AS AN EXTRA HAND IN THE SPINNING ROOM.

This bearing is furnished in our famous CWA#4 Jump Saddle (see below), ready for immediate shipment, but it can be applied to all DIXON front saddle bearings.

When ordering new Jump Saddles for weighting front and back rolls only, specify our CWA#4 with LUBRONZE Bearing. All Dixon Saddles are products of long experience and quality workmanship—the best you can buy.

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DYES & CHEMICALS — PRODUCTS & PROCESSES

Chemical Inhibits Steam-Line Corrosion

MORPHOLINE, Carbide & Carbon Chemicals Corp., Room 309, 30 E. 42nd St., New York, N. Y.

Morpholine, an organic chemical alkali that inhibits corrosion in steam and condensate-return lines is again available, according to the manufacturer. Morpholine, an organic chemical alkali, controls acidity due to free carbon dioxide in feedwater or carbon dioxide resulting from decomposition of soluble carbonates. Morhpholine evaporates with water in definite proportions so that any desired alkaline value in the steam generated can be maintained, it is said, by adjusting the concentration in the boiler.

System Identifies Types of Resloom

A new system for identification of various formulations of Resloom, the melamine-resin series of Monsanto Chemical Co. has been announced.

The basic name, Resloom, is retained, but an appended subtitle differentiates the functions of each variation. The types now available are:

Resloom—Formula R—for crush-resistant rayon.

Resloom—Formula W—for washable wool.

Resloom—Formula C—for wrinkle-resistant cotton.

Two New Plasticizers For Coated Fabrics

MONOPLEX 11 and 16, Resinous Products & Chemical Co., Philadelphia, Pa.

Two new plasticizers for polyvinyl chloride and copolymers are available for use as free film for rainwear, shower curtains, upholstery, luggage, and in coated fabric.

Monoplex 11, a dialkyl ester of a synthetic long-chain dibasic acid, displays high plasticizing efficiency in polyvinyl-chloride stocks, with low-temperature and ultra-violet resistant properties at much lower volatility than is usually found combined with such solvating action. Stocks plasticized have excellent hang and drape.

Monoplex 16, a high-molecular-weight nitrile plasticizer, yields polyvinyl-chloride stocks of superior heat and ultra-violet stability, outstanding permanence, good low temperature flexibility, and extremely low water sensitivity. The relationship of temperature to solvating action of Monoplex 16 is well-suited for dispersion compounding.

Plasticizer Has Low Cost, High Flexibiltiy

PARAPLEX RG-10, Resinous Products & Chemical Co., Washington Sq., Philadelphia 5, Pa.

Paraplex RG-10 is intended for use with nitrocellulose, urea, and melamine resins. This new polyester features high flexibility, low cost, light color, improved alcohol tolerance, greater solvency for nitrocellulose, unusual pigment stability, and increased adhesion to vulcanized rubber. It resists ultra-violet light and does not spew even at temperatures as high as 325° F.

Screen-Printing Adhesive Holds Cloth to Table

RESYLN ADHESIVE Q3613; National Adhesives Div., National Starch Products, Inc., 270 Madison Ave., New York 16.

A new screen-table adhesive announced by National Adhesives Div., National Starch Products, Inc., is said to do away with the time-consuming method of nailing or pinning fabrics or silk screens to printing tables in silk-screen printing processes.

The screen-printing-table adhesive called Resyn Adhesive Q3616, is designed to hold unprinted cloth to the screen table with sufficient adhesion to prevent slippage of the material during printing; yet tests reportedly have shown that the cloth is readily removable after the printing has been completed, with no adhesive sticking to the printed cloth or in any way damaging it.

Resyn Adhesive Q3616 is a light-gray emulsion. Tests show that the new product maintains sufficient tack for screen printing for a period of several weeks, it is said.

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It knits the entire stocking from top to toe in one operation. No change-overs, no bad matching, no "seconds" . . . It takes finest gauges perfectly because it is not affected by changes of temperature...It is shipped complete and starts producing stockings 3 hours after it reaches your plant. Has other exclusive features.

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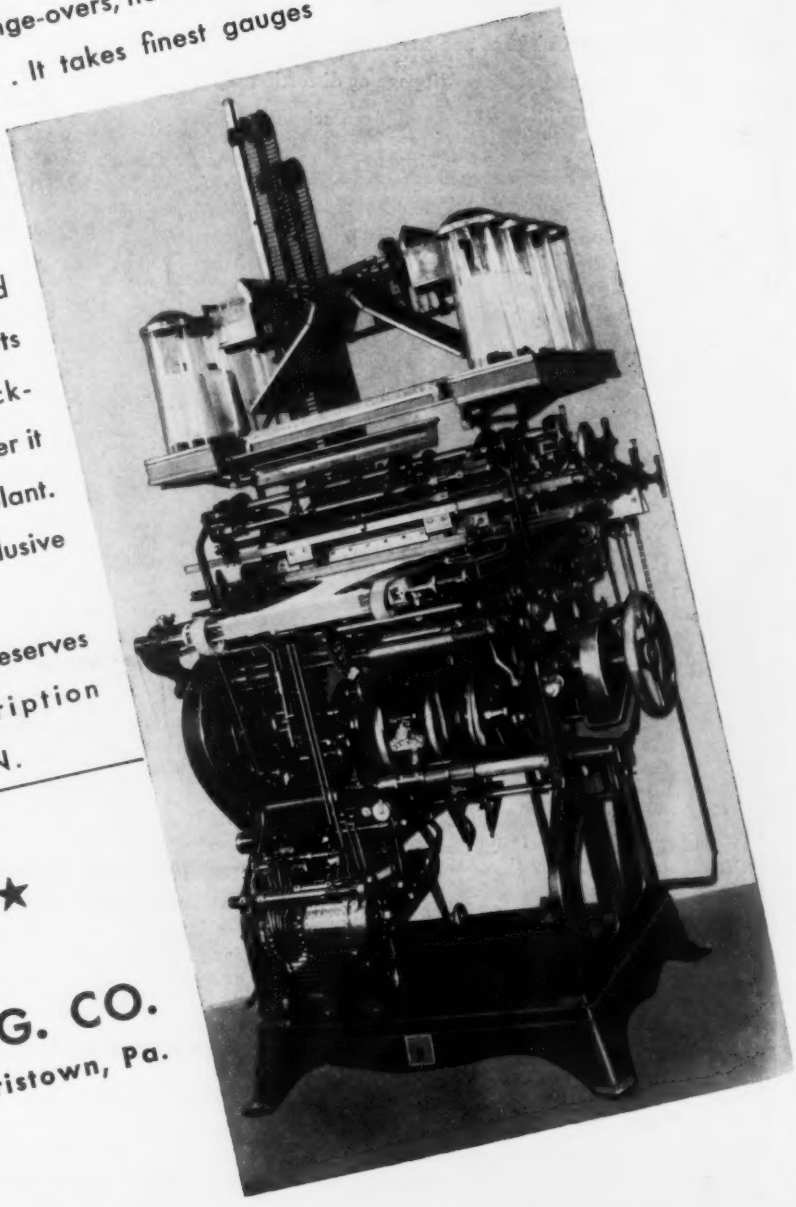

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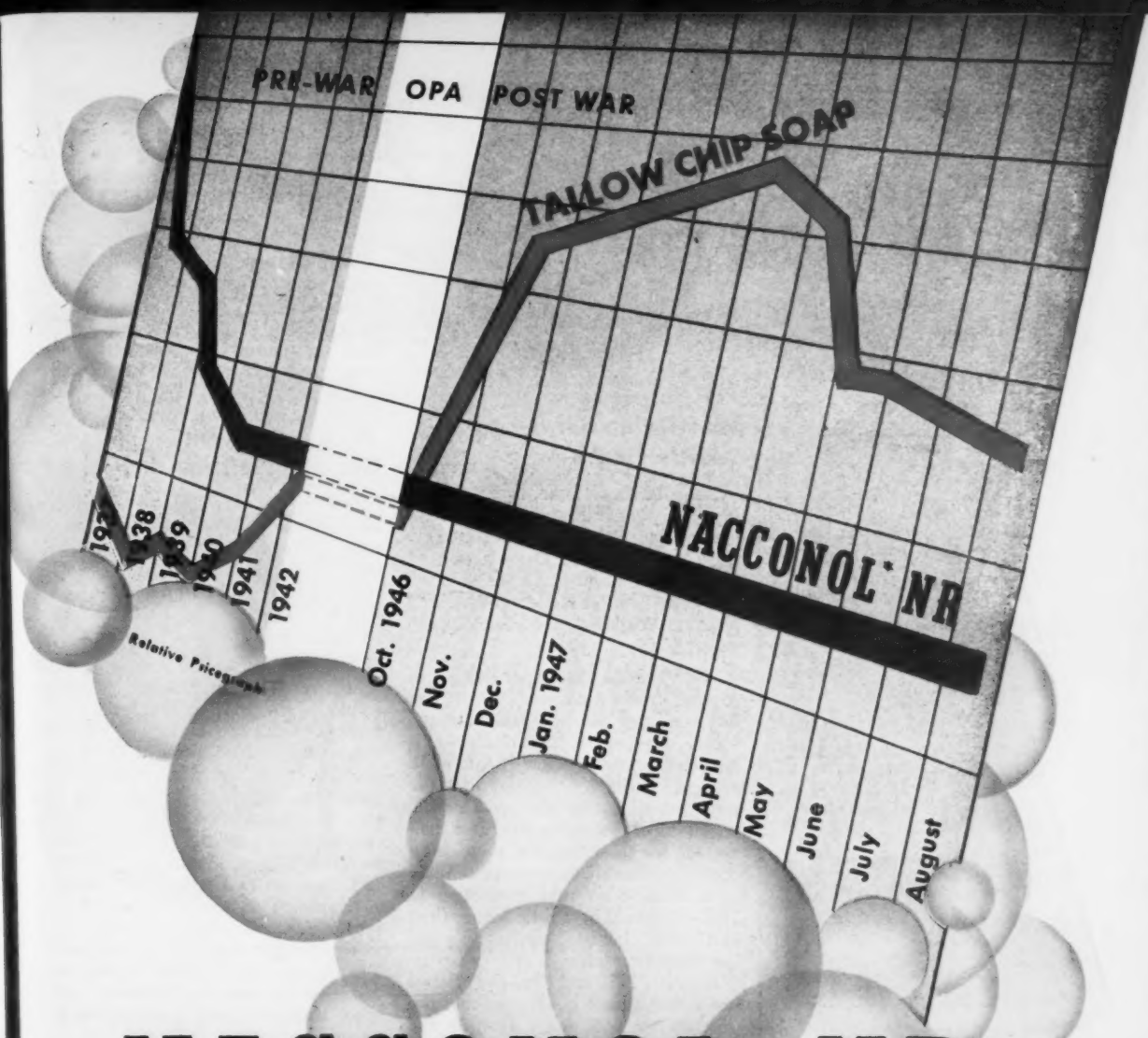

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Books of Interest

Worldwide Survey of Textile Fibers

WORLD FIBER SURVEY, by Dr. Gerda Blau and staff, Fibers Section of Economics, Marketing, and Statistics Div. Food & Agriculture Organization of United Nations; FAO of United Nations, 2000 Massachusetts Ave., N. W., Washington 6, D. C.; 176 pages, $1.00.

This survey estimates that in 1946-47 world production of the five major apparel and household fibers—cotton, wool, rayon, silk, and flax—was about one quarter below the 1934-38 average. Owing to the fact that the carry-over of cotton and wool at the beginning of the season was larger than normal, the total supply of these fibers was approximately the same in 1946-47 as in 1934-38. World production in 1947-48 should be a little higher than in 1946-47, but still considerably below the prewar level.

Between 1939 and 1947 the price of raw cotton almost quadrupled and the price of raw wool nearly doubled, the survey points out. The most widespread difficulty in fiber processing continues to be shortage of labor. In a period of full employment, labor can find better-paid work elsewhere. Lack of fuel, power, and chemicals has also impeded production. However, looking further ahead, the survey finds that the world pattern is one of potential fiber abundance. The tables, charts, etc. are of general interest to those involved with economic phases of the textile industry.

Costing in Wool Mills

COSTING IN THE WOOL TEXTILE AND OTHER INDUSTRIES, by D. R. H. Williams; Emmott & Co., Ltd., 31 King St. West, Manchester 3, England; 100 pages, 21 shillings.

Although this volume is British in origin, it contains sufficient analysis of the principles involved in woolen and worsted cloth-mill costing to be interesting reading to an American in this or a similar business. The book is actually a second edition of one previously issued in 1928, but a substantial part has been rewritten in light of the author's experience during the war with government purchases of military goods. Mr. Williams advises that a good cost system must be accompanied by good management to result in profit. He considers the relation to cost accounting of full and partial operation, but concludes that efficiency of the machine unit is more important than the amount of machinery running. The book is full of tables and forms; every step is well exemplified by specific figures and data.

German Finishing Process

GERMAN TECHNICAL DEVELOPMENT IN TEXTILE FINISHING PROCESSES, compiled by Francis S. Richardson, OQMG Consultant; Textile Series Report No. 3, Hobart Publishing Co., Box 4127 Chevy Chase Br., Washington 15, D. C.; 226 pages, $12.50.

This mimeographed volume with offset reproductions of charts, photographs, and original documents is the result of visits to Germany by textile experts in late 1945 and early 1946. It contains much diversified material on bleaching, dyeing, printing, drying, etc., together with studies of the chemistry of swelling, proof finishes, preserving agents, softening agents, and aqueous dispersions of textile auxiliaries. The fabrics considered are for the most part cotton or rayon.

The publishers of this volume have a listing of some 21 other volumes on textile techniques in Germany and other European countries available at prices ranging from $1.00 to $7.50.

For Perfection of Research Organization

COORDINATION OF MOTIVE, MEN, AND MONEY IN INDUSTRIAL RESEARCH, prepared by Darrell H. Voorhies; Standard Oil Co. of California, Dept. on Organization, 225 Bush St., San Francisco, Calif.; 64 pages.

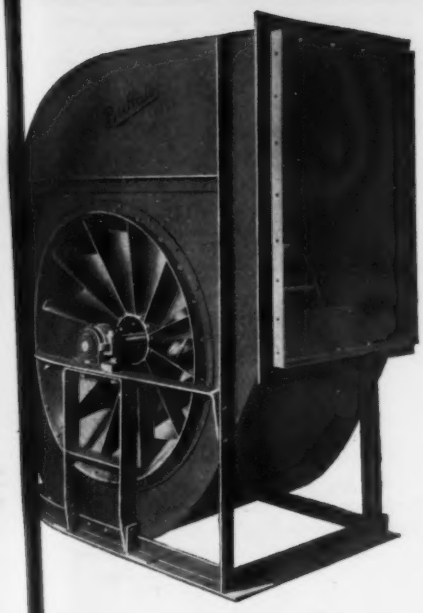
How to organize a working industrial research department is the subject of this handbook. The text is supplemented by numerous organization charts, some in two colors.

Directory Includes Household Textiles

THE NRFA BUYER; National Retail Furniture Association, 666 Lake Shore Drive, Chicago 11, Ill.; 538 pages, $15.00.

This directory lists 6,000 manufacturers, including eight pages of mills and jobbers under 146 fabric names.

Cut "ELBOW LOSSES" IN YOUR AIR DELIVERY!



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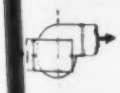
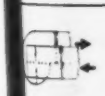
		Static Pressure	Buffalo Type "LL"	Competitive Forward Curve
	Elbow on fan outlet	1"	3%	7%
		¾"	3%	7%
		½"	3½%	11%
	Elbow on inlet from left side	1"	2½%	8½%
		¾"	2%	11%
		½"	3%	17½%
	Elbow on inlet from right side	1"	1½%	5%
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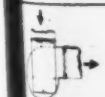
		½"	2½%	7%
	Elbow on inlet from top	1"	2½%	5%
		¾"	2%	6%
		½"	3%	7%
	Elbow on inlet from bottom	1"	1½%	5%
		¾"	1½%	6%
		½"	2½%	7%

...s based on a fan outlet velocity of 1600 feet per minute.

Often, when space considerations call for installing a fan with elbow connections either on inlet or outlet static pressures go up! You're paying for more power and less delivery.

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The table at left shows, by actual pitot tube readings at 1600 cfm outlet velocity, the way these Buffalo Fans can step up the efficiency in your air system.

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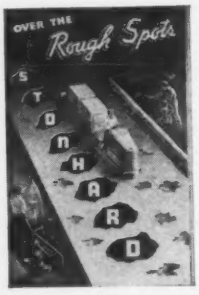

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News of the month

RULES FOR SHRINK-RESISTANT WOOL GOODS. Woolen and worsted manufacturers and finishers will eventually have a set of rules pertaining to labeling fabrics and garments subjected to shrink-resistant processes. At a recent informal meeting of nearly 100 representatives of the wool, wool finishing, chemical, and other industries with members of the Federal Trade Commission, the need was emphasized for setting up fair-trade-practice rules for advertising and promoting fabrics receiving shrink-resistant treatment with the object of protecting both the public and the industry. Widely varying points of view were expressed as to the scope of the rules to be eventually formulated. It was decided that the trade associations representing the various segments of the wool industry would nominate working committees to funnel information to the FTC staff working on the rules themselves. The next step will be the calling of a formal industry-wide conference in New York sometime during the winter. After that, FTC will hand down its proposed rules, based on the information and suggestions it has received. Another conference will then be held on the proposed rules, and interested parties may file briefs taking exception to any of them. Finally, FTC will rewrite and promulgate the rules by which the industry must guide its advertising, promotion, and testing of the fabrics involved.

RUSSIA PICKS COTTON MECHANICALLY. Moscow (McGraw-Hill World News)—Mass production of a vertical-spindle cotton-picking machine, identified as the "KVS," is expected to be launched by the Soviets this autumn, following final tests during this year's cotton picking season. The machine has been in production for some time, after having operated successfully last year in large-scale harvesting at cotton plantations in Uzbekistan. Each machine is said to replace 30 to 35 cotton pickers. Reported to have been developed by the Central Research Institute of Cotton Growing, the machine is produced in two tractor-drawn models: the "N" model, which does a single picking operation on the plant; and the "N-2" model, which performs a double-picking operation for each passage of the tractor. The "N" model is reported to pick 74.5 to 78% of the cotton during pre-frost harvesting, and 78 to 86% during post-frost harvesting, or for both pickings 87.5 to 93% of the total crop. The raw cotton picked by this machine, after being put through the cleaning process is rated as first-grade by existing Soviet standards. The machine is

Textile Calendar

Felt Association, fall meeting, Shawnee-on-Delaware, Pa., Sept. 19 to 21, 1947.

AATCC, Philadelphia Section meetings, Sept. 26 and Nov. 8, 1947; Jan. 16, Feb. 27, Apr. 9, and May 21, 1948 (Bellevue-Stratford Hotel, Philadelphia).

AATCC, Northern New England Section meetings, Sept. 26 and Nov. 21, 1947.

Independent Association of Full-Fashioned Hosiery Manufacturers of America, outing, Cedarbrook Country Club, Philadelphia, Sept. 26, 1947.

Fire Prevention Week, Oct. 5 to 11, 1947.

Made-in-Georgia Exposition, Atlanta, Ga., Oct. 8 to 12, 1947.

National Association of Cotton Manufacturers, 93rd annual meeting, Sheraton-Biltmore Hotel, Providence, R. I., Oct. 9 and 10, 1947.

North Carolina Cotton Manufacturers Association, annual meeting, Grove Park Inn, Asheville, N. C., Oct. 9 and 10, 1947.

Committee D-13, ASTM, Philadelphia, Oct. 17, 1947.

American Association of Textile Chemists & Colorists, annual convention, Congress Hotel, Chicago, Ill., Oct. 23 to 25, 1947.

Building Maintenance Supplies Exposition, Grand Central Palace, New York, Oct. 27 to Nov. 1, 1947.

Lighting Exposition & Conference, Stevens Hotel, Chicago, Ill., Nov. 3 to 7, 1947.

Philadelphia Section AATCC, silver anniversary dinner, Bellevue Stratford Hotel, Philadelphia, Nov. 8, 1947.

Textile Research Institute, annual meeting, Waldorf-Astoria Hotel, New York, Nov. 13 and 14, 1947; Laboratories Building, Princeton, N. J., Nov. 15, 1947.

National Cotton Council, tenth annual meeting, Biltmore Hotel, Atlanta, Ga., Jan. 21 to 23, 1948.

International Heating & Ventilating Exposition, Grand Central Palace, New York, Feb. 2 to 6, 1948.

Hosiery Industry Conference and Annual Meeting of NAHM Claridge Hotel, Atlantic City, N. J., April 19 and 20, 1948.

International Exposition of Textile Machinery, Equipment & Supplies, 71st Regiment Armory, 34th St. and Park Ave., New York, May 3 to 7, 1947.

Southern Textile Exposition, Textile Hall, Greenville, S. C., Oct. 4 to 9, 1948.

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RESISTS OIL—No swelling to cause concave surface. The face remains parallel.

RESISTS HEAT—No change in the character of the rolls due to heat. Successfully operated from 40° F. to 120° F.

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REDUCES STATIC ELECTRICITY—A special technique of composition permits rolls to conduct electricity. That means far less static electricity —a minimum of lapping up.

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Canadian Textile Engrs. Ltd.
980 St. Antoine St., Montreal

LUBRIPLATE maintains a durable, load carrying film at the "Friction Point," which reduces friction, retards progressive wear and prevents rust and corrosion. That is why gears lubricated with LUBRIPLATE last longer and run better. Don't take our word for it. Prove it to yourself. Thousands have in every industry.

LUBRIPLATE

Lubricants definitely reduce friction and wear to a minimum. They lower power costs and prolong the life of equipment to an infinitely greater degree. LUBRIPLATE arrests progressive wear.

LUBRIPLATE

Lubricants protect machine parts against the destructive action of rust and corrosion. This feature alone puts LUBRIPLATE far out in front of conventional lubricants.

LUBRIPLATE

Lubricants are extremely economical for reason that they possess very long life and "stay-put" properties. A little LUBRIPLATE goes a long way.

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DEALERS FROM COAST TO COAST

CONSULT YOUR CLASSIFIED TELEPHONE BOOK

INSTITUTE OF TEXTILE TECHNOLOGY at Charlottesville, Va., has received a contribution of $80,000 from Callaway Institute, Inc., La Grange, Ga., for the purpose of building and equipping a seminar building or auditorium at Charlottesville dedicated to the memory of the late Stuart W. Cramer. A previous contribution of $20,000 from Callaway Mills has been designated for use in the same project, making a total of $100,000 now available for it. The Association of Cotton Textile Merchants of New York has donated money to build and equip a technical library to be known as the Merchants Library. Both of these buildings will be erected as wings of the new Administration Building as shown above; auditorium at right, library at left.

said to harvest an area of 0.61 to 0.69 acres per hour. The machine has a capacity of 440 to 660 lb. per hr. The "N-2" model simultaneously performs a double-picking operation, and in one passage is reported to harvest 92 to 95% of the crop.

FORESEES SEVERAL YEARS OF GOOD BUSINESS. The cotton-textile industry at all levels of production and distribution can look forward to several years of good business, provided its problems are properly handled with due regard to mutual necessities of all in the industry and to its responsibility to the public, Saul F. Dribben, president of Cone Export & Commission Co., Inc., New York, declared before the Textile Merchants & Associated Industries dinner, at Palmer House, Chicago, Aug. 26.

WOOL PURCHASE PROGRAM. The U. S. Department of Agriculture resumed its wool-price-support program on Aug. 15. New legislation provides for price support at the 1946 level but makes it possible for Commodity Credit Corp. to sell its stocks on a competitive basis. Previously, legislation required that such wool be sold at not less than parity. Under the 1946 program year, the national average grower price was slightly more than 42¢ a lb., grease basis. This year, higher premiums will be paid on fine wools and a little less for the lower-grade wools for which there is less demand.

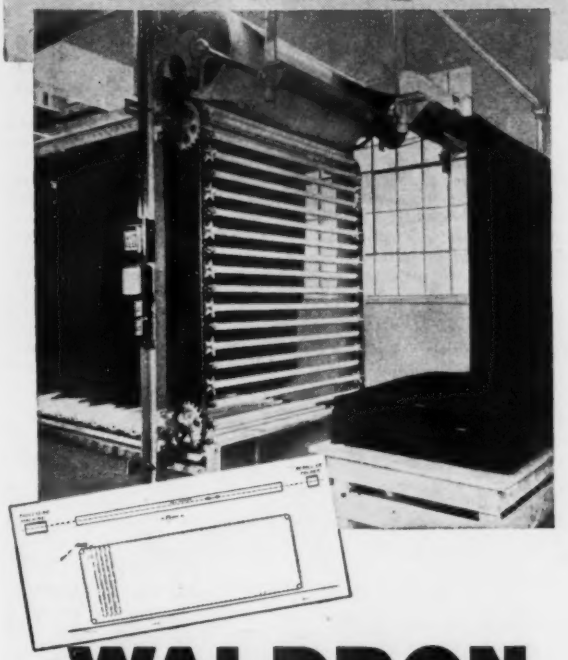
WARP KNITTERS ORGANIZE. Formation of a Warp Knit Fabric Manufacturers Group under the sponsorship of National Federation of Textiles, Inc., has now been made effective by an organization committee chosen at an exploratory meeting held last May 27. Henry Neubert of Deering, Milliken & Co., is chairman of this committee. The tentative program is focussed on smoother trade relations, to be brought about, it is hoped, by establishment of standard rules of practice as to such things as "deliveries"; "defective goods allowances"; "grading"; "as are" goods, "run-of-mill"; "short-lengths"; "cancellations, rejections, and claims"; "packing standards"; etc. It contemplates, also, adoption of a standard form of sales contract, with an arbitration clause. Research on wearability and establishment of minimum quality standards are other suggestions. Also tentatively proposed are statistics to supplement government reports and marketing studies to throw light on the competitive relationship (within their natural spheres) of warp-knit fabrics to other textiles.

GOVERNMENT HAS RAYON COMPANIES FOR SALE. The Office of Alien Property, Department of Justice, has concluded a settlement with the Netherlands Government and Algemeene Kunstzijde Unie N.V. (AKU), a Netherlands rayon company, regarding property in the United States of AKU and of two affiliated German companies, Vereinigte Glanzstoff Fabriken A. G. and J. P. Bemberg, whereby the Office of Alien Property will acquire all interests of AKU and its German affiliates in North American Rayon Corp. and American Bemberg Corp. and the United States will release from foreign funds control blocking the AKU interest in American Enka Corp. AKU and affiliates own a controlling interest in North American Rayon Corp., Amer-

SEPTEMBER has been designated as "Pennsylvania Textile Month" by Governor Duff of that state. The governor in his proclamation names Pennsylvania as "the leading textile state of our nation." The textile month will serve as background for the start of the civic appeal for funds by Philadelphia Textile Institute for erection of its new school buildings on a 12½-acre estate lately acquired in Germantown, Pa.

Air Drying...

protects color and "feel" of the goods!



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Festooning Machines

For handling practically all classes of treated fabrics or paper. Waldron Festooning Machines provide definite operating advantages and economies. An absolute assurance of perfect uniformity in drying is secured. This method of air drying eliminates the possibility of traces of solvents being confined within folds to affect "feel"; it prevents tints and shades from changing due to temperature conditions; and savings in labor costs over manual handling are usually sufficient to pay for the equipment many times over. For drying speed, accuracy and economy, consider a Waldron Festooning Machine built to meet your particular requirements.

Write For Copy of This New BULLETIN No. 120

In addition to Festooning Machines it covers related handling equipment such as Unrolls, Tension Controls, Converting, Conveying, Guiding, Winding, Drives, etc. Write for your copy today. No obligation.

JOHN WALDRON CORP.
Main Office and Works
New Brunswick, New Jersey
MACHINES

Growing STEADILY *with* RAYON *since* 1920

1920 Rayon Production: 33,100,000 lbs.

(earliest figures available to us)

1946 Rayon Production: 853,915,000 lbs.

(latest complete figures for an entire year)

In every year since 1919 more rayon has been sized on Johnson sizers than on all other rayon sizers in the world combined.

JOHNSON IS THE WORLD'S ONLY SPECIALIST IN THE MANUFACTURING OF SIZERS FOR SYNTHETIC YARNS

Charles B. Johnson

PATERSON, NEW JERSEY

SPUN ACETATE YARN DYEING

Fast or Ordinary Colors

Skeining of yarn is eliminated. Wind it direct from the spinner's bobbins to Atlantic Dyetubes for package dyeing in large batches.

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Dyers and Converters of Synthetic Yarns for All Industries

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★

SOCIETE MISR POUR LA RAYONNE, an 11-ton per day rayon-yarn, staple, and transparent-film plant, will start production about November, 1947, according to the machinery manufacturers and plant builders, Oscar Kohorn & Co., Ltd., New York. The original contract for a 5-ton filament-rayon plant signed in October, 1945, was expanded in March, 1946, to a total of 11 tons by adding staple and transparent-film production. In 18 months, machinery and auxiliary equipment exceeding twice that of the original plan was manufactured and delivered. Egyptian engineers have been trained in rayon production at the Kohorn pilot plant in the United States. Kohorn is also supplying the Egyptian plant with power, water-treatment, and chemical equipment similar to the self-contained design recommended for India.

ican Bemberg Corp., both founded by German interests, and American Enka Corp., founded by Netherlands interests. All are rayon manufacturing companies. Before the war, AKU was owned primarily by Netherlands and German investors. The American government is proposing to sell its controlling interest in these companies, but apparently will not sell to other rayon companies nor to textile manufacturing firms. The government plans that whoever gets this control, said to be worth at least $60,000,000, must retain the present status quo of customer service for a minimum of 5 yr.

SOUTHERN HOSIERY MEN MEET. Taylor R. Durham of Charlotte, N. C. was re-elected president and secretary of the Southern Hosiery Manufacturers Association by the board of directors Aug. 22 at the annual convention in Roanoke, Va. Joseph L. Turbidy of Rome (Ga.) Hosiery Mills was named to succeed Carl S. Kincaid of Magnet Mills, Inc., at Clinton, Tenn., as chairman of the board. Speakers included Earl Bunting, president of the National Association of Manufacturers; W. H. Westphal, of A. M. Pullen & Co.; L. C. Byrd, Virginia state senator; and L. P. McLendon, attorney specializing in labor-management relations.

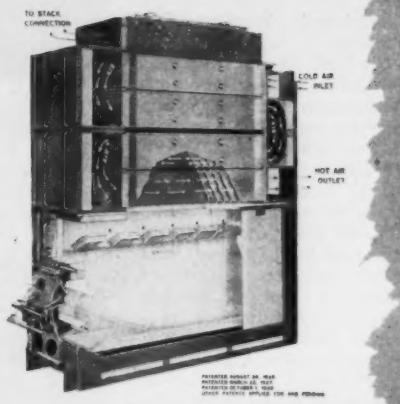
RAYON MACHINERY GOES ABROAD. Modern pot-spinning machines head shipments of machinery which Oscar Kohorn & Co., Ltd., New York, is making to rayon plants in Greece, Czechoslovakia, and China. The Greek Artificial Silk Co., Ltd., "ETMA," has employed Kohorn machinery for 19 yr. Bata Viscose Silk Mfg. Co., of Czechoslovakia, had its first Kohorn machinery installed in 1934. Kohorn's contract with Aloud Rayon Co., of Shanghai, China, marks a dramatic war chapter since the original machinery purchased before Pearl Harbor was hidden by the Chinese during the Japanese occupation. Much of this machinery has been retrieved and is now being set up. A Kohorn representative in Shanghai recently took a contract for modern pot-spinning machines, Kohorn shelf-type after-treating machines, and auxiliary equipment which will complete China's first rayon plant.

EGYPT SEEKS PLANTS. Mustafa Maher Bey, director general of the Department of Industry in the Ministry of Commerce & Industry of Egypt, is in the United States to discuss the possibility of establishing branch plants of American industries in Egypt and obtaining technical industrial assistance from American firms. He may be reached through L. L. Horch, regional director, U. S. Department of Commerce, New York, N. Y. He is particularly interested in textile mills and in plants for rayon and nylon production. He has already a preliminary commitment from one textile company.

TURNABOUT. American luxury fabrics, styled for the new season's luxury fashions, are now being shown in Paris to leading couturiers by Eloise Davies, director of promotion and publicity for Haſner Associates, New York. Miss Davies flew to Paris recently with several sample dress lengths.

GIFTS TO TEXTILE SCHOOLS. Gifts totaling $2,230,500 have been made by the textile industry of the Carolinas and Georgia to three separate state textile educational foundations as follows: $540,000 to the Textile Educational Foundation at Georgia Tech; $851,500 to the North Carolina Textile Foundation at North Carolina State College; and $839,000 to the Sirrine Textile Foundation, at Clemson College.

ROSS AIR HEATER



Will heat air to 400° or higher for fusing ORGANOSOL-COATINGS on Textile or Paper

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ROSS also designs and builds complete systems for drying the coatings before fusing, or a combination of coating and fusing in one unit.

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Strong talk from a worthy working girl to Mr. Head Man!

But then—whether she expresses her sentiments aloud or not—that's just about how strong her attitude is on the subject of cleanliness.

The straight-from-the-shoulder truth is—many an employee feels there isn't room enough in an organization to hold both herself and a neglected, unsanitary washroom.

That home-clean, spic-and-span washrooms inspire permanent loyalty, help prevent the spread of disease, reduce absenteeism and increase efficiency accordingly . . . is no idle washroom chatter. Surveys staunchly back up the facts.

Employees, after all, are as humanly sensitive to their surroundings as the "Boss" himself.

And that's good enough reason why so many alert employers the country over are "heading West" . . . meaning the use of West Washroom Service. Provenly the *West Way* is *one* way of keeping company morale *high* by keeping the "germ count" *low*.

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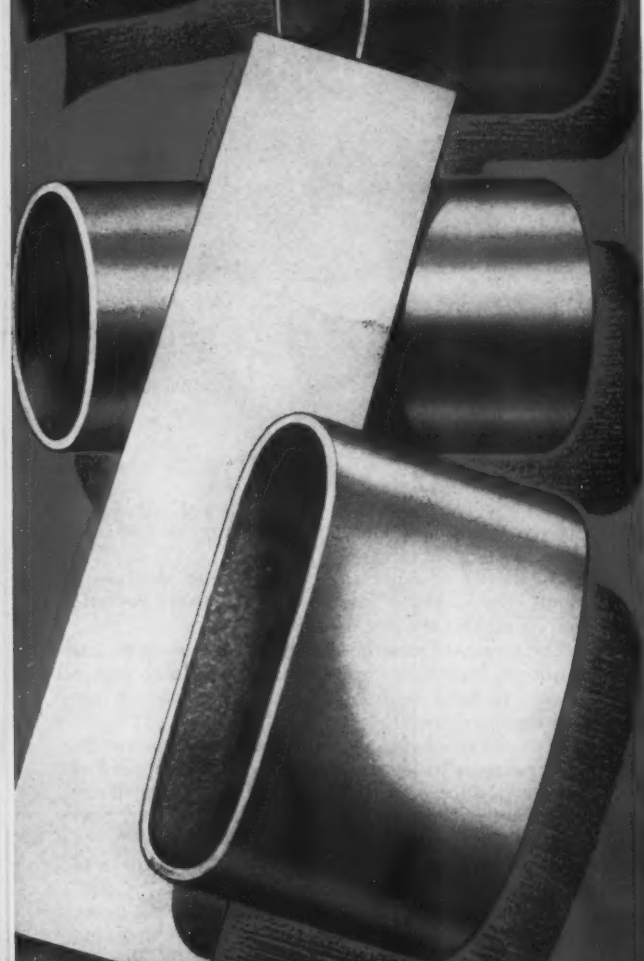
FIRST CHOICE IN APRON LEATHERS

LAWRENCE

Long Draft Apron Calf



It's Better Naturally

THAT'S WHY, WHERE QUALITY COUNTS, CALFSKIN SPINS THE YARN

A. C. Lawrence Leather Company, Peabody, Mass. Manufacturers of Lawrence Spinne Calf—top name in roll coverings.

A.C. LAWRENCE LEATHER CO. TEXTILE LEATHERS PEABODY

NEWS ABOUT Suppliers

Universal Winding Co., Providence, R. I.—Edward S. Broadbent, for many years head of Universal's Utica office, has retired after nearly 39 yr. with the company. He has been succeeded at Utica by Hubert D. Kernan, Jr., who has had a broad background in textiles, including weaving and finishing. He was associated for several years before the war with Skenandoa Rayon Co., of which his father, the late Hubert D. Kernan, was treasurer. Universal has moved sales activities for Atwood products from the Atwood plant at Stonington, Conn., to the main Universal plant at Providence, where they will be under the direction of W. S. Warren, Universal's sales manager. W. L. Paulhamous, assistant sales manager for Atwood products, and Richard F. Lenihan are now established in the Providence office. John R. Breen will shortly set up headquarters in Universal's Philadelphia office and will continue to handle Atwood accounts in New York, Pennsylvania, and adjacent territory. Frederick Sails will remain at his present address in the Johnston Bldg., Charlotte, N. C., covering the Southern territory. Theodore Dewhurst will soon make his headquarters at Universal's office at 10 High St., Boston 10, Mass., and serve New England on Atwood products.

ROBERT S. DEMPSEY has been appointed by Monsanto Chemical Co. as New York manager of sales and development of its Textile Chemical Dept. During the war, Mr. Dempsey was chief of the Textile Machinery Branch of WPB. He was recently vice-president of Raycrest Mills, Pawtucket, R. I., and has spent more than 20 yr. in the textile industry. For 17 yr. prior to the war, he was with McCampbell & Co., heading its converting department for 10 yr. He was a pioneer in the introduction of shrinkage-control processes for cotton goods. At Monsanto, Mr. Dempsey will be active in the introduction to the trade of Monsanto's new Resloom melamine-resin processes by which woolens and rayons are made washable and crease-resistant. His headquarters will be at 445 Park Ave., New York.

Barnes Textile Associates, Boston, Mass.—S. B. Lincoln of Lockwood Greene Engineers, Inc., and N. M. Mitchell of Barnes Textile Associates, Inc., sailed on the Queen Elizabeth Sept. 3 for Southampton, and are proceeding by plane to Bombay, India, to conduct engineering services for Tata Sons, Ltd., of Bombay, owners of four large cotton mills, with a total of 300,000 spindles and approximately 7,000 looms. The engineers will survey and report on the company's properties and advise the owners in connection with building construction, power development, production, machinery, manufacturing procedures, work assignments, cost and accounting methods as practiced in the United States. The two engineers plan to return to the United States at the conclusion of the work by continuing on an easterly course which will bring them back via the west coast.

Scott & Williams, New York, has appointed Miss Adele Gilruth as director of the publicity department which it recently created to carry on the nationwide promotion of Dancing Twins seam-free nylons.

American Viscose Corp. has set up at its Textile Research Dept., Marcus Hook, Pa., a complete service department for F. N. F. knitting machines. Walter T. Boyer, who has been trained at the F. N. F. factory at Burton-on-Trent, England, is in charge. The department will carry a complete line of spare parts including pattern wheels

and the tubular compound needles which are a feature of the machine. The production model of the new 84-in. two-bar tricot machine has arrived in Marcus Hook.

J. E. Sirrine Co., Greenville, S. C., is the new form of name for the engineering firm known for many years as J. E. Sirrine & Co. This results from the death of J. E. Sirrine, founder and senior partner. The firm and its services remain unchanged, as planned by Mr. Sirrine.

Hunt Loom Co., and **Mountain City Foundry & Machine Co.**, Greenville, S. C., are considering plans of consolidation and merger under the name of Hunt Machine Works, Inc. The new firm would have capitalization of $2,000,000. The physical plant of Mountain City Foundry has recently undergone considerable expansion, with some of the work still not completed.

Freydberg Bros.-Strauss, Inc., and **Plexon, Inc.**, have taken new executive offices and showroom space at 419 Fourth Ave. The new offices occupy the entire top floor and double the former space at 212 Fifth Ave., New York. Lurelle V. A. Gould, interior designer, planned the new offices. A circular showroom with removable stage for permanent exhibits and fashion displays is a feature.

Percy A. Legge, Philadelphia, has opened a Southern office at 205 Irvin Arcade, Greensboro, N. C., with John W. Simpson, Jr., in charge as district manager.

E. I. du Pont de Nemours & Co., Wilmington, Del., is about to construct a new $150,000 office building for its Southern branch in Charlotte, N. C., J. A. Jones Construction Co. has contract for the three-story, concrete, steel, and brick structure. A modern laboratory, faced with tile, will be on the third floor. The building will be air-conditioned and have fluorescent lighting. M. K. Ryan, Jr., a technical textile specialist for 24 yr., has been made manager of the fabric development section of the Acetate Div. His headquarters will be at 350 Fifth Ave., New York, where he succeeds Carl I. Taber, who was recently transferred to the Nylon Div. Mr. Ryan, formerly manager of the technical service section of the Acetate Div. in Wilmington, will be succeeded there by Dr. G. S. Hooper, technical superintendent of the acetate-yarn plant at Waynesboro, Va. Elgin S. Nickerson has been appointed general manager of the Fabrics & Finishes Dept., succeeding J. Warren Kinsman, who recently became a company vice president and member of the company's executive committee. Dr. H. H. Hopkins, formerly manager of the Finishes Div., was appointed assistant general manager of the Fabrics & Finishes Dept., succeeding Mr. Nickerson. Matt Denning, formerly assistant manager, succeeds Dr. Hopkins.

Monsanto Chemical Co., St. Louis, Mo., has completed a

ARNOLD, HOFFMAN & CO., Providence, R. I. has added Richard C. Dowling and Harold C. Wood to its sales staff. Mr. Dowling (left) will be attached to the company's Philadelphia office. He was for 17 yr. in the Organic Chemicals Div., of E. I. du Pont de Nemours & Co. and more recently with several important textile mills. Mr. Wood (right), who will have headquarters in the Boston office, is a Philadelphia Textile School graduate. He was, for a time, with Farr Alpaca Co. and for the last 10 yr. has had selling and demonstration experience in the New England territory. He is president of the grand council of Phi Psi textile fraternity.

TOP NAME IN ROLL COVERINGS

LAWRENCE

It's Better Naturally

THAT'S WHY, WHERE QUALITY COUNTS, CALFSKIN SPINS THE YARN

A. C. Lawrence Leather Company, Peabody, Mass. Manufacturers of Lawrence Calfskins — 1st choice for aprons.

A.C. LAWRENCE LEATHER CO. TEXTILE LEATHERS PEABODY

don't buy

Certified Climate

REG. U. S. PAT. OFF.

invest in it

Others have, and it hasn't cost a cent . . . Paid for itself remarkably soon.

•

Parks-Cramer Company

Fitchburg, Mass. Charlotte, N. C.

new $3,000,000 plant at Monsanto, Ill., for the manufacture of Santomerse No. 1, a synthetic detergent. Production will continue at Monsanto's Nitro, W. Va., plant, which has manufactured Santomerse for many years. Recent appointments in the research department of Monsanto's Central Research Laboratories at Dayton, Ohio, include the following: Dr. Robert A. Staniforth, chief of the chemistry section; Dr. Raymond Davis, Jr., group leader in physics; Dr. Wilson H. Power, group leader of fundamental research. Monsanto has opened a new office in Philadelphia in the Widener Building, Juniper and Chestnut Sts. Leaves of absence to attend the advanced management program of the Harvard University Graduate School of Business Administration have been awarded R. S. Wobus, manager of Monsanto's Norfolk, Va., plant, and Wm. M. Russell, branch manager of the Organic Chemicals Div. Detroit territory.

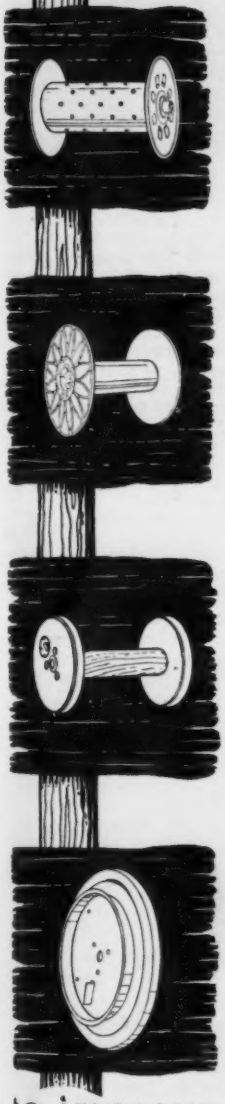
American Cyanamid Co., Pigment Dept., Calco Chemical Div., has established four regional sales territories and appointed E. Carling, K. A. Coate, S. F. Dimlich, and L. C. Green, as regional sales managers with offices in New York, Chicago, Cleveland, and San Francisco, respectively. Calco has appointed Dr. H. B. H. Cooper as an assistant manager of its development department.

Pittsburgh Plate Glass Co., Pittsburgh, Pa., has appointed Robert L. Hutchison as general superintendent for its Columbia Chemical Div. and for the Southern Alkali Corp.

Brown Instrument Co., Philadelphia, has assigned a new group of sales engineers to the branch and regional offices as follows: Edgar Andrews, Atlanta; Nilsson S. Bassett, Boston; R. J. Bierman and Clarence W. Swanson, Minneapolis; Edward J. Bryne, Houston; Warren H. Erftenbeck, Buffalo; David J. Fair, Dallas; William R. Hamaker, Detroit; Charles F. Hintz, Chicago; Lawrence W. King, New York; Donald W. Larcen, Milwaukee; John F. Smith, Tulsa, Okla., and Andrew H. Albec, Cleveland, Ohio. Brown Instrument Co., on Sept. 15 for the twelfth consecutive year, began the fall semester of its training courses in industrial measuring and control devices at its school of instrumentation in Philadelphia. Classes are made up of engineers and instrument staff members of customers of the industrial division of Minneapolis-Honeywell Regulator Co. The group includes representatives from China, India, and other coun-

STEEL HEDDLE MFG. CO., Philadelphia, Pa., supplies the above snapshot of an unusual use for its Duplex stainless-steel flat heddles. Picture was taken at Pacolet Mfg. Co., Gainesville, Ga., where a pigeon built a nest of these heddles. Searching all quarters of the mill for the logical place to build, the bird decided to build its new modern home right on a window sill of the weave shed. It is probably the first all-heddle bird's-nest ever created. A healthy brood of modern youngsters were soon hatched out. This nest was made of discarded heddles, picked off the scrap heap after the heddles had done their job of weaving.

HUBBARD SPOOLS and Related Products



STAINLESS STEEL BOBBINS

Provide extreme strength and balance. Stainless steel construction eliminates problems of corrosion and staining. Designed for steaming and similar silk and rayon processing operations.

MAGNESIUM ALLOY WARP BEAMS

The best in quality construction regardless of price. Thirty-five years of specialization in spool manufacture result in warp beams with every quality for better, lower-cost production. Warp beams made of all-steel also available.

WOOD AND METAL JUTE BOBBINS

Resin bonded plywood head construction, metal bound with steel tire provides overall strength equalled only by toughest steel. Tire protects against chipping, burring, and warping. Available in a range of standard sizes.

LOOM BEAM HEADS

Balanced, relatively light-weight construction assures better operation and easier handling. Resin bonded plywood, metal bound with steel tire results in head of extreme strength.

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1630 CARROLL AVENUE
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to lower your costs.....
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Since 1912 Manufacturers of Spools and Related Products

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SPUN FIBERS, INC.
Worsted Yarn on the American System

NONQUITT
Spun Rayon Blends Specialty Yarns

WILLIAM Whitman COMPANY, INC.
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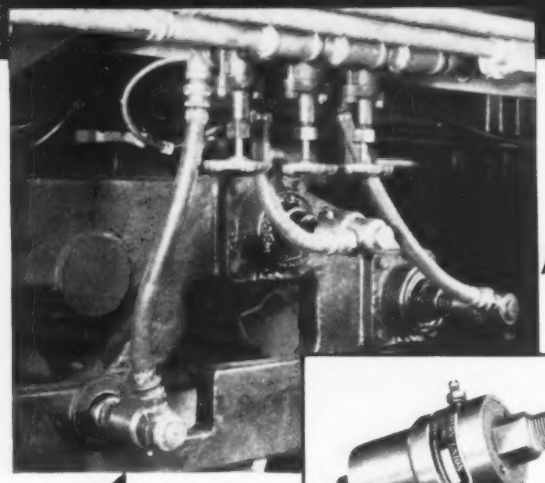
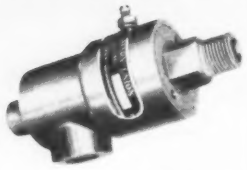
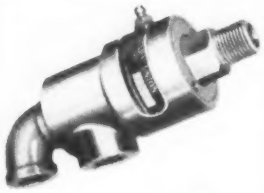
ALL PURPOSE BALL-BEARING
TRADE ROTARY UNIONS MARK
"Where Good Connections Count"



CAN BE APPLIED IN A JIFFY!



TYPE P
Single Inlet Union



TYPE S
Syphon Union

No complicated piping or supports needed with these ball-bearing ROTARY UNIONS: you simply screw the union into the rotating member and attach the flexible hose to the steam or coolant supply. Less installation time—less machine down time—less servicing required. OTHER SAVINGS: less space required; simple . . . less power required; low friction drag...less maintenance; no leakage under pressure. Fast becomes standard in the paper industry. Available in both plain and syphon heads.

Ask for Engineering Catalog No. 350, on the ALL PURPOSE Ball Bearing ROTARY UNION

SPEEDY DELIVERY

PERFECTING SERVICE COMPANY
6140 Cottage Grove Ave., Chicago, Ill.

tries. The course will end on Dec. 12.

Pennsylvania Salt Mfg. Co., Philadelphia, has appointed Dr. Ford R. **Lowermilk as** supervisor of the Development Div. in its Research & Development Dept. He replaces Frank R. Murphy, who recently was appointed assistant production manager of the Manufacturing Dept.

Dow Chemical Co., Midland, Mich., is this year marking 50 yr. of industrial activity. The company was incorporated in 1897 for $200,000 to extract chlorine from the brine wells of Midland for the end-product of chloride of lime, or bleaching powder. Processes were developed by **Herbert H.** Dow, who had established a small business in Midland in 1890 for the electrolytic extraction of bromine from these same brines. The company expanded over the years into the production of other materials including carbon-tetrachloride, lime sulphur, magnesium sulphate, phenol, calcium chloride, synthetic indigo, magnesium, plastics, styrene, butadiene, and silicones, to mention only a few. Its current capitalization is carried on the books at over $67,000,000. Willard H. Dow, son of the founder, is the company's president.

Hart Products Corp., New York, has added **Mrs. Helen** Culligan Buchanan, musical comedy star of a few years ago, to its New England sales staff to handle textile chemicals. Mrs. Buchanan is the widow of the late Raymond Buchanan, former salesman for Hart Products. She will handle the sales for Hart Products throughout the state of Connecticut from her home in Stafford Springs, Conn.

Westinghouse Electric Corp., Pittsburgh, Pa., has appointed H. W. Lingenfelter, for 23 yr. a lighting engineer, to be manager of commercial, industrial, and floodlighting sales for the Lighting Div., Cleveland, Ohio.

Link-Belt Co., Chicago, has appointed Albert Mussachoot, lately a member of its general engineering staff at Philadelphia, to be assistant to the chief engineer, with headquarters at the company's general office in Chicago.

E. WAYNE HALEY has been appointed director of sales for the Southern Alkali Corp., a subsidiary of Pittsburgh Plate Glass Co. Associated with Southern Alkali since 1935, Mr. Haley has served as assistant director of sales during the last 12 yr. As director of sales, he succeeds Eli Winkler, who will continue with the firm in the capacity of sales consultant. Mr. Haley will maintain headquarters at 30 Rockefeller Plaza, New York. H. W. Gleichert, director of sales for the Columbia Chemical Div., will continue in that capacity with headquarters in Pittsburgh.

Leeds & Northrup Co., Philadelphia—L. R. Garretson, since 1925 advertising manager, has retired because of his health. He began his business career some years earlier with the Philadelphia Drying Machine Co., with which he was successively draftsman, salesman, and advertising serviceman. He is succeeded at Leeds & Northrup by Kenneth W. Connors.

Allis-Chalmers Mfg. Co., Milwaukee, has elected Harold S. Falk, president of The Falk Corp., to its board of directors. He succeeds his uncle, the late Herman Falk, who was a member of the board for 14 years.

Foster D. Snell, Inc., New York, N. Y., has added John R. Skeen to its staff as account executive in charge of market research.

Chain Belt Co., Milwaukee, has added David B. Hill to its Atlanta office as district field-engineer. Orval Lorenz has joined the Dallas office. Charles Stanton has moved from the Detroit office to the Philadelphia office.

General Mills, Inc., Chemical Div., Minneapolis, Minn. has appointed Almon G. Hovey, with 25 years' experi-

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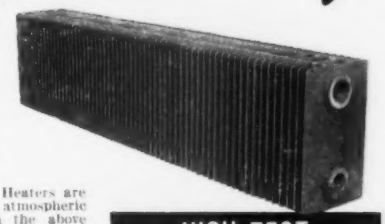
Operate 100% Efficiently

HERE'S WHY

- One piece construction heating sections (Patented) of high test cast iron that will withstand steam pressures up to 250 lbs.
- No soldered, brazed, welded nor expanded connections to become loose or develop leaks.
- No electrolysis to cause corrosion, with resultant breakdowns, leaks or heating failures now, or in future years.



GRID High Test Cast Iron Unit Heaters are engineered especially to overcome atmospheric conditions such as illustrated in the above picture, conditions ever present in textile mills. Many GRID units have been in continuous operation for over 17 years in textile mills all over the country, without maintenance expense. Capacity tables and complete details upon request. Write for free booklet "CORROSION IN UNIT HEATERS."

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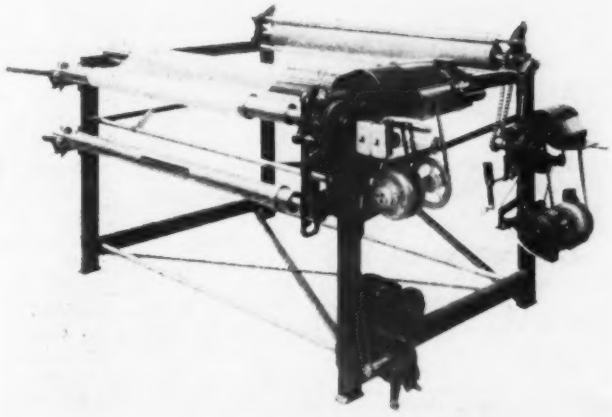
D. J. MURRAY MANUFACTURING CO. WAUSAU WISCONSIN



A NEW HERMAS ROLLING AND MEASURING MACHINE FOR PLASTIC SHEETING

Takes plastic sheets direct from an extruder and puts them on tubes or rolls.

No stop for doffing full rolls. Continuous speeds of 12 to 50 feet a minute.

One of the complete Hermas line of textile machines.

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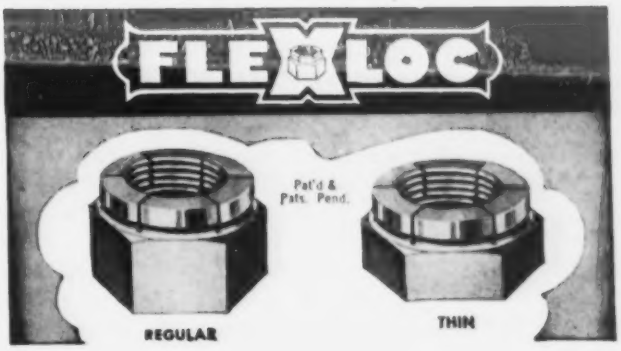
America's Only Specialist in Clothroom Equipment



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Free samples of our "Flexloc" Self - Locking Nuts — "Draper" or American Hex Standards—are yours for the asking.

"Flexloc" packs maximum usefulness in minimum space because it is rugged, self-locking, compact —and is therefore becoming increasingly popular and this applies alike to U.S.S. and S.A.E. thread series.

Every thread — including the locking threads — takes its share of the load.

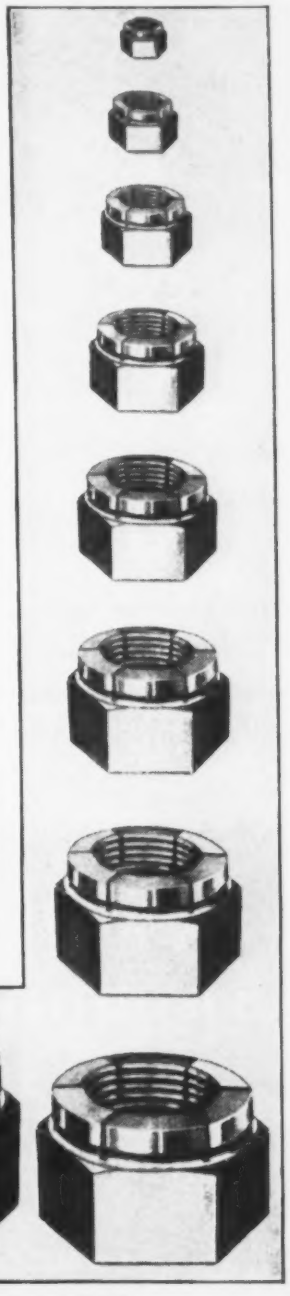
Covers a wide range of tolerances—from low #1 to high #3. Can be used over and over again without losing much of its locking ability.

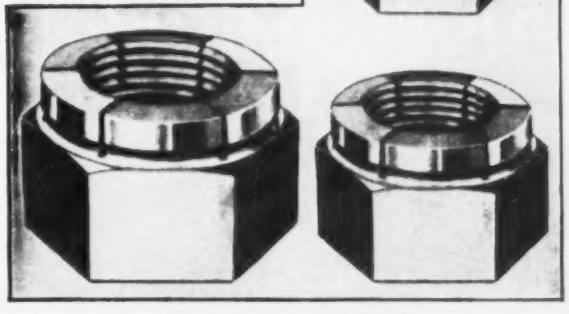
Being a "stop" nut, it stays locked in any position on a threaded member.

"Flexloc" Thin Nuts are especially popular, because their tensile is so high.

Sizes from #6 to 1" in diameter — MILLIONS IN USE. Can be made of all commercial metals such as Steel, Stainless Steel, Brass, Bronze, etc. Some of the largest mills have found them to cut maintenance radically.

Convince yourself with a few free samples





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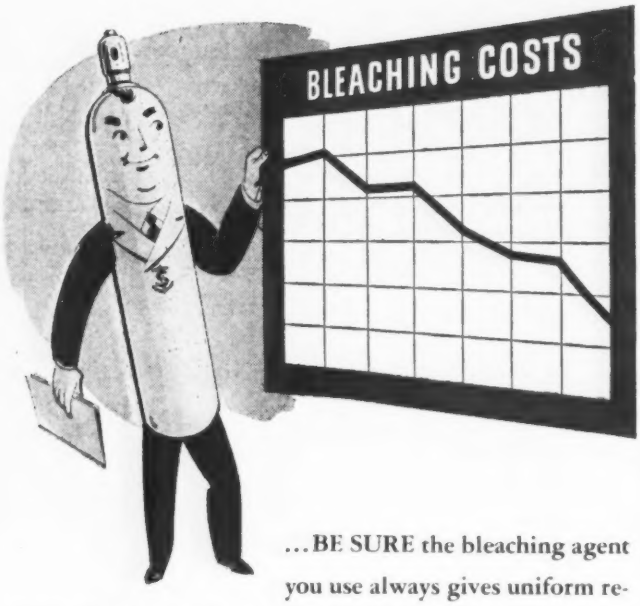
"I give reliable bleaching ---and at low cost, too!"



...BE SURE the bleaching agent you use always gives uniform results. Specify SOLVAY Liquid Chlorine, the oldest, most successful bleaching agent, as well as the lowest in cost.

THE NUMBER OF LARGE textile businesses now using SOLVAY Liquid Chlorine is testimony of its uniform performance. Yes . . . you get controlled quality—purity—uniform results—low costs . . . with Solvay Liquid Chlorine!

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LIQUID CHLORINE

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NEWS ABOUT SUPPLIERS

ence in synthetic resins, to take charge of its technical sales service.

Baker-Raulang Co., Baker Industrial Truck Div., Cleveland, Ohio, has appointed J. G. Green as mid-western representative. He will make his headquarters at 407 S. Dearborn St. Chicago.

Robert Gair Co., Inc., New York, N. Y., has appointed Beaven W. Mills as its art director.

The B. F. Goodrich Co., Akron, Ohio.—Willard C. Gulick, with Goodrich since 1926, has been named president of International B. F. Goodrich Co. He has been general sales manager of the company's export division, and he succeeds Stanley W. Caywood, who retired for reasons of health.

Caterpillar Tractor Co., Peoria, Ill., has appointed Wendell J. Farischon as news editor of Caterpillar's news service, succeeding Jerry Reichert, who has assumed a position as editor of employee publications at Cutter Laboratories, Berkeley, Calif.

Package Machinery Co., East Longmeadow, Mass., will be host to an inspection tour at its new plant during the fifteenth annual meeting of the Packaging Machinery Manufacturers Institute to be held at Springfield, Mass., on Oct. 6 and 7.

Liquid Conditioning Corp., Linden, N. J., has appointed M. J. Rahiya as its engineering sales and service representative in Louisville, Ky.

R-S Products Corp., Philadelphia, Pa., has promoted David W. Hopkins, consulting engineer, to be executive vice president in charge of the Valve, Furnace, & Manufacturing Div. Mr. Hopkins has been with R-S Products since September, 1939, and previous to his new position was in charge of its Valve Div.

The 2nd International Lighting Exposition & Conference will be held in Chicago, Nov. 3 to 7 at the Stevens Hotel. E. C. Huerkamp, sales manager of the Lighting Div., Westinghouse Electric Corp., is exposition chairman. An extensive program features authoritative speakers.

Railway Express Agency, New York, has appointed James B. Finnin as manager of its Air Express Div. for the eastern departments. He succeeds R. G. McLain, who is now superintendent of the Commercial Div., New York City Dept.

U. S. Industrial Chemicals, Inc., New York, and **Stanolind Oil & Gas Co.,** have entered into a long-term contract for the sale by U. S. I. of all water-soluble oxygenated chemicals to be produced at the first two synthetic gasoline and oil plants using the Fischer-Tropsch process. The plants are being undertaken by Stanolind (a Standard Oil Co. of Indiana subsidiary) and Carthage Hydrocol Corp. Products will include ethyl alcohol, methyl alcohol, normal propyl alcohol, normal butyl alcohol, normal amyl alcohol, acetone, methyl ethyl ketone, acetic acid, propionic acid, butyric acid, acetaldehyde, propionaldehyde, and butyraldehyde. In addition, U. S. I. will produce esters, higher alcohols, and other chemicals from some of the primary products which it manufactures.

Fairbanks, Morse & Co., Chicago, Ill., has appointed L. A. Weom as manager of the company's Pump Div. to succeed Arnold Brown, resigned. Mr. Weom has been with the company since 1929 and was lately manager of the pump and electric department of the company's branch at St. Paul, Minnesota.

Swift & Co., Chicago, Ill., has let contracts for construction of two buildings to be part of the new technical products plant at Hammond, Ind. Completion is scheduled for 1948. This new plant will process special oils for use in manufacture of rubber, textiles, soap, cosmetics, linoleum, paint, lubricants, as well as many other products.

New England Spectrochemical Laboratories, Ipswich, Mass., has purchased the former Anna Peabody estate on the banks of the Ipswich River, and is now occupying the premises. Facilities have been greatly expanded for studying the chemical problems of the textile manufacturer. The laboratory maintains a flock of Merino sheep to aid in wool research.

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Your

SURFACE WEAR TESTS

with the

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STATIC

CAN BE TAMED WITH

$2780 LOSS to a plate glass company when a static spark ignited lacquer thinner.*

$21,500 DAMAGE in a cotton mill when a static spark set fire to a mixture of naphtha vapor and air as treated cotton duck passed through a dryer.*

2 KILLED, 30 injured, $140,000 destruction because Hydrogen leaking from an air cylinder produced a static spark that exploded the gas.*

*Insurance company reports.

Static is a trouble maker during the winter heating season when the air is dry. When static potentials build up, the danger of a spark discharge represents a serious fire and explosion hazard where volatile liquids, gases or inflammable dust are present. Dry air plays hob in other ways, too. It causes brittleness and breakage of textile fibers; slows up production; causes costly moisture loss from materials sold by weight—increases costs, lowers quality and reduces output.

There is a simple, economical answer to this problem: *add moisture to the air* with Armstrong Steam Humidifiers . . . they give you the humidity you want where you want it. Installed like unit heaters, they are simple, automatic, inexpensive to operate, quiet and dependable.

SEND FOR NEW BULLETIN No. 177—discusses humidification, contains useful charts and tables, explains operation of Armstrong Humidifiers and how to select them. Yours for the asking.

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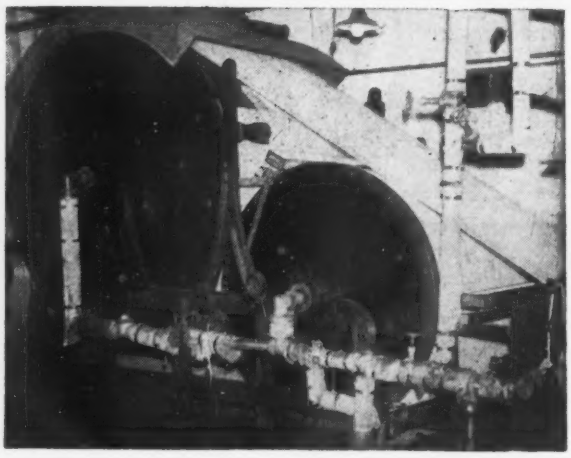
ARMSTRONG *Steam* HUMIDIFIERS
Easy to Install and Maintain . . . Automatic . . . Economical



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Increased production —
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for use in shrinking fabrics to the *"Sanforized"* standard by the Compressive Shrinkage process, are daily meeting the most exacting requirements of finishers throughout the industry. From the lightest and finest fabric to the heaviest denim, there is a special Huyck blanket to meet your specific needs.

Huyck blankets retain high shrinkage and finish properties to the last.

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KENWOOD MILLS
Albany 1, New York

NEWS ABOUT *Mills*

Cotton Mill News

Alice Mfg. Co., Easley, S. C., is installing air conditioning in Alice and Arial plants and is improving dwellings in each mill village.

Avondale Mills, Pell City, Ala., is making rapid progress on construction of a 1,500,000-gal. water reservoir, with completion due in November.

Berkely Mills, Balfour, N. C., has completed new one-story addition.

Berkshire Fine Spinning Corp., Boston, Mass., has been incorporated to take over and succeed Berkshire Fine Spinning Associates, Inc.

Camperdown Mill, Greenville, S. C., has secured building permit to construct recreation building.

Candlewick Yarn & Mfg. Co., Dalton, Ga., plans two-story and basement yarn mill. Crutchfield & Palm, Chattanooga, Tenn., is architect.

Cosmos Imperial Mills, Ltd., Yarmouth, N. S., plans expansion and improvement in mills, including new buildings and equipment, to be carried out over a period of several months. Cost reported over $700,000.

Glenwood Cotton Mills, Easley, S. C., is installing electric motors to replace steam engines formerly used in operation of plant. Work is under direction of Carter Electric Co., Augusta, Ga., and will cost more than $100,000.

Harmony Grove Mills, Commerce, Ga., has awarded contract to Fennell Construction Co., Gainesville, Ga., for one-story warehouse to cost over $100,000.

Huntsville Mfg. Co., Huntsville, Ala., has installed 13 new spinning frames and 140 looms in the first step in its projected $1,000,000 expansion program.

Jennings Cotton Mill, Lumberton, N. C., has been sold to M. S. Dayan, New York, N. Y.

Kutztown Mills, Inc., Kutztown, Pa., will begin installation of first unit of 140 new automatic Draper looms in plant's addition, work on which has recently been completed. Capacity reached 300,000 yd. per month last month as compared with former 150,000 yd. Completion of program will bring capacity to 500,000 yd.

M. Lowenstein & Sons, Inc., New York, N. Y., has option to purchase controlling interest in capital stock of Brookside Mills, Inc., Knoxville, Tenn. Mill is equipped with 199 cards, 65,744 ring spindles, 12,304 twister spindles, and 998 looms.

Montreal Cottons, Ltd., Valleyfield, Que., has let contract to Anglin-Norcross, Quebec, Ltd., Montreal, Que., for three-story warehouse addition, 50x95 ft.

Muskogee Mfg. Co., Columbus, Ga., has let contract to William Construction Co., Columbus, for addition to Mill No. 3. Robert & Co., Atlanta, Ga., is architect and engineer.

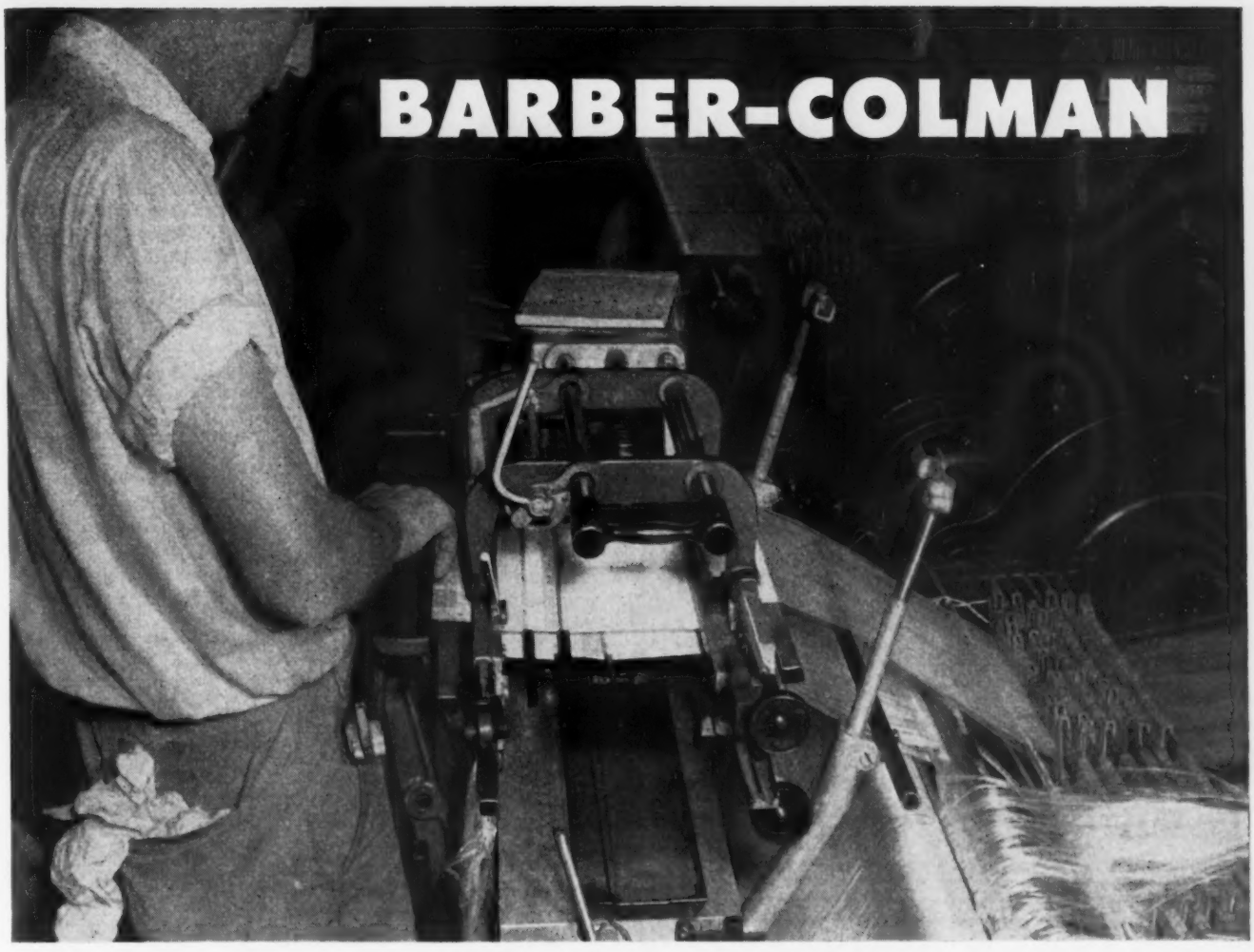
Pepperell Mfg. Co., Lindale, Ga., plans one-story gymnasium for employees and will ask for bids soon. Stewart A. Marshall, Rome, Ga., is architect.

Pierce Bros., Ltd., New Bedford, Mass., is nearing completion of modernization program begun 5 yr. ago. Present equipment includes 900 automatic looms, with 400,000 ring spindles.

Pinnacle Mills, Easley, S. C., has improved and modernized plant and added considerable amount of new machinery.

Premier Thread Co., Pawtucket, R. I., has purchased one-story building for reported price of $45,000, and will remodel and equip for branch mill.

Proximity Mfg. Co., Greensboro, N. C., plans expansion program at its Pineville, N. C., plant which will cost about $1,500,000 and will double plant's capacity. Pineville plant was purchased from Textron,



PORTABLE WARP TYING MACHINES MAKE SUBSTANTIAL COST SAVINGS IN SMALL MILLS

Portable
WARP TYING MACHINE

Many of the smaller mills are finding that a Barber-Colman Portable Warp Tying Machine is a profitable investment — even though its full-time capacity is not needed or used. This machine offers a fast and accurate means for tying-in new warp *at the loom.* It can be handled satisfactorily in confined and hard-to-reach spaces and in loom alleys as narrow as 12". An inexperienced hand can learn to operate it capably in a comparatively short time. Overall production capacity of the machine averages 3500 to 4500 ends per hour, varying with the sley of the warp. On high sley warps, production may run as high as 5500 ends per hour. Interchangeable knotter units enable the machine to tie a wide range of counts, and models are available to handle cotton, wool, silk, or synthetics. Tying is accurate and uniform and so much more efficient than common hand methods that the machine will pay for itself quickly in cost savings. *For full details and specific recommendations for your mill, consult your Barber-Colman representative.*

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • DRAWING-IN MACHINES

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MILTON Light Metal BEAMS

for every application!

STANDARD TRICOT and SPECIAL

MILTON LIGHT METAL BEAMS are now made in three popularly accepted standard sizes PLUS special sizes to meet specific operating conditions.

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CONTINUOUS WELDED CONSTRUCTION

Accurately machined after welding to assure a true-running beam with a smooth, permanent finish.

SPECIALIZING IN THE TEXTILE MACHINERY FIELD

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Erection

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SAVES Power, Oil, Belting, and Maintenance Cost.

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Your inquiries are welcome.

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GREENVILLE, SOUTH CAROLINA

Inc., last October and was formerly a unit of Gossett Mills. Proximity has purchased Randleman Mills, Inc., Randleman, N. C., from Susquehanna Mills, New York, N. Y.

Reeves Bros., Inc., New York, N. Y., has offered to purchase textile plants, generating station, and inventory of Eagle & Phenix Mills, Columbus, Ga., for an undisclosed sum. Offer will be submitted to the stockholders of Eagle & Phenix Mills at a special meeting. The proposed purchase will add 66,000 spindles, 1,600 looms and 764,000 ft. of floor space to Reeves' present capacity. W. C. Bradley, chairman of board, who was planning to retire, died suddenly before the transaction was completed. The executive personnel will be invited to continue with new management which contemplates no change in organization.

San Antonio Cotton Mills, San Antonio, Tex., will award contract soon for new boiler house. W. E. Simpson, San Antonio, is engineer.

Standard - Coosa - Thatcher Co. is installing modern control laboratory at spinning plant in Chattanooga, Tenn. Layout, testing methods, and standards were established in collaboration with Werner Textile Consultants, Inc., and P. O. M. Co., industrial consultants, New York, N. Y.

Victor Balata & Textile Belting Co., Easton, Pa., plans new addition to cost approximately $200,000, with equipment.

Wamsutta Mills, New Bedford, Mass., has recently converted 40,000 sq. ft. of space formerly used for storage to needle-trade work. Singer sewing machines and other equipment are now being installed and in the near future the mills will be making, ticketing, and merchandising 1,000 doz. shirts and 300 doz. suits of pajamas a week.

Waverly Hall Textile Co., Waverly Hall, Ga., has been organized to operate mill for manufacture of webbing, tape, etc.

Wool Mill News

Commercial Combing Co., Inc., Woonsocket, R. I., has been chartered to operate wool-combing mill. Louis M. Macktaz, Woonsocket, is principal incorporator.

Kelpie Ltd., Montreal, has been established by Chas. E. Lewis Ltd., of Truro, N. S. The new company will process shrink-proofed wool and blended yarns. Three-story building has been acquired and is being repaired and altered for installation of machinery. A subsidiary company, Kelpie (U.S.A.) Ltd., was incorporated in the United States in 1947 and commenced operations in Philadelphia. Operations in both plants will be under direction of Vernon H. Hopper. President of Canadian unit is Charles E. Lewis.

Mohawk Carpet Mills, Amsterdam, N. Y., has let contract to Turner Construction Co., New York, N. Y., for one-story warehouse with 62,000 sq. ft. floor space.

H. M. Prince Textiles, Inc., New York, N. Y., has consolidated with Devonshire Fabrics, Lambeth Woolens, Ltd., Hampshire Looms, Inc., and Hendon Woolen Mills, Inc., which will hereafter operate as divisions of the New York corporation and not as separate business entities.

Prudential Worsted Co., Philadelphia, Pa., has let contract to A. Luther Nash, Doylestown, Pa., for remodeling and improving building at Doylestown for new branch mill.

Simcoe Wool Stock Co., Simcoe, Ont., recently commenced operations in new branch factory in Jarvis, Ont. Fred Amberger, of Simcoe, is in charge.

Valentine Mills, Inc., Bennington, Vt., has recently installed 20 new looms and is now running on three shifts.

Virginia Woolen Co., Midway, Va., has begun work on construction of new mill, which with machinery will cost $1,000,000.

Wool Combing Corp. of Canada, Ltd., will increase productive capacity of plant at Acton, Ontario, from 6,000,000 to 7,500,000 lb. of wool tops annually. When expansion program is completed, the one plant will be in a position to produce half the tops required by domestic market.

M·B "AMOSKEAG" PNEUMATIC ROLL PICKER

MODEL A.V.T.
20,000 R.P.M.

This is NOT a grinder, but the original pneumatic tool especially designed for the SPECIFIC Purpose of

REMOVING LINT and FLY

from the top rolls and other parts of the drafting elements on

SPINNING FRAMES also ROVING FRAMES

Spindle design permits using PICK (which gathers the fly and lint), 3/16" diameter by 5" long when used on Spinning Frames and 3/16" diameter by 7" long when used on Roving Frames. Exhaust air directed back of roll picker to prevent fly and lint from being blown into yarn when spinning . . . PATENT APPLIED FOR. Steel housing for safety; special grease-sealed bearings. No lubrication required.

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Order NOW

Genuine CAMACHINE Slitter Wheels #795A and #428B are now available in stock for immediate shipment. Replace worn discs now. Write for details.

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Immediate Delivery

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Positive Identification with the "Smooth as Velvet" touch

21 COLORS **$8** Per Case of 4½ Gross
WHITE **$7** Per Case of 10 4½ Gross

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Free Samples on Request!

REPRESENTATIVES WANTED

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- New Type Creels
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- and many other improved model machines

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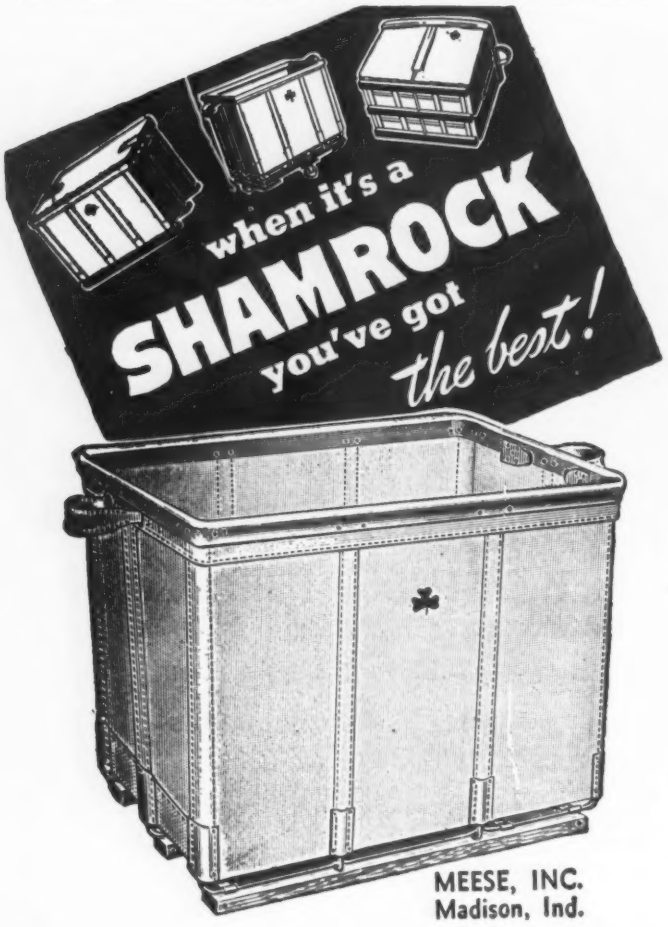


MEESE, INC.
Madison, Ind.

Rayon & Silk Mill News

American Enka Corp., which is building new plant at Lowlands, Tenn., plans to begin operations in first unit Dec. 22. Remainder of plant will be completed within 2 to 3 yr. First unit will produce 20,000,000 lb. of rayon tire cord and 2,000,000 lb. of other rayon yarn annually.

American Velvet Co., Inc., Stonington, Conn., has started work on alterations to plant. Elci Co., Inc., New London, has general contract. Contract for new elevator has been awarded to Otis Elevator Co., Hartford. Plans were drawn by Scholfield & Lindsay, New London, architects.

British American Silk Mills Ltd., Granby, Que., has been acquired by Mount Royal Textile Corp., Montreal. This new firm has authorized capital of $37,500. E. N. Tabah is president and general manager; John D. Kouri, vice president and general sales manager; Geo. H. Shutt, treasurer and mill manager. Company plans to increase output at Granby plant by installing additional looms and auxiliary equipment.

Beacon Label Corp., New York, N. Y., manufacturer of clothing labels, has opened its first New England branch in Claremont, N. H. Edward B. Williams is production manager of the corporation, which is operating in a section of Monadnock Mills, now owned by Claremont Development Corp.

Caddo Silk Corp., Marshall, Tex., a new silk industry, will reach full production late in August; 150,000 silk worms will hatch every 10 days until end of mulberry leafing season in September. Machines for reeling silk will arrive at plant soon. Bob Magers is owner.

Celanese Corp. of America, Inc., Cumberland, Md., has let contract to George Hazelwood Co., Cumberland, for one-story addition, 70x110 ft., to be used as recovery unit. Cost reported over $100,000, with equipment. Celanese also has construction going forward rapidly at Celriver plant near Rock Hill, S. C. Contractor, Daniel Construction Co., Greenville, S. C., plans to complete work by February, 1948. Plant is scheduled to begin yarn production in July, 1948. The corporation has purchased 1,100 acres of land and will enclose 120 acres surrounding the plant with fencing.

E. I. du Pont de Nemours & Co., Martinsville, Va., has just begun operations on limited basis in one new unit of nylon yarn plant.

Esther Mill Corp., Shelby, N. C., will construct addition.

Hathaway Mfg. Co., New Bedford, Mass., has work in progress for penthouse at Mill No. 9. Addition will house air-conditioning unit from plans by F. P. Sheldon & Sons, Providence. Theodore Loranger & Sons, New Bedford, is contractor.

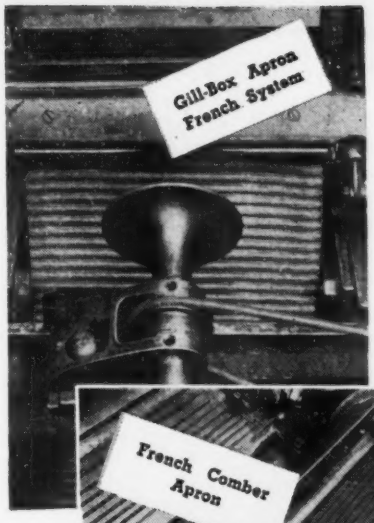
Oscar Kohorn & Co., New York, N. Y., has concluded agreement with Czechoslovak chemical factory, "Dynamit Nobel" of Bratislava for building new plant for rayon production. The capacity will be 10 tons daily.

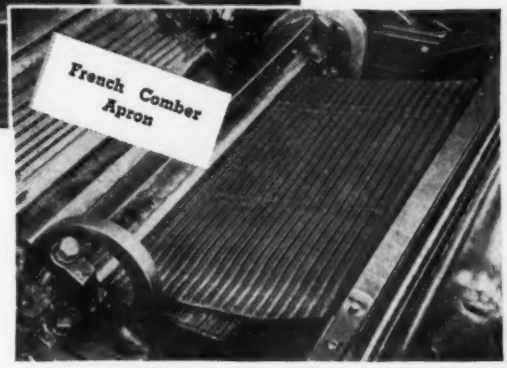
Lowell Weavers, Inc., Lowell, N. C., recently established, is processing samples on six looms and expects to install additional machinery when plant space is available. The company will manufacture novelties. C. C. Fisher is president.

National Weaving Co., Lowell, N. C., is constructing a one-story addition to plant which will house new high-speed warping and slashing machinery. Cost, $40,000. Plant is a unit of Beaunit Mills, Inc., and is engaged in the manufacture of rayon fabrics.

Mooresville Mills, Mooresville, N. C., will complete $2,000,000 expansion program by Jan. 1 which will double present capacity for washable rayon fabrics. Installations will consist of windowless, air-conditioned building and more than $1,500,000 of new equipment for carding, spinning, weaving, and finishing, including 12,000 spindles. About 62,000 sq. ft. of floor space will be added to present unit. There will also be a $800,000 unit for picking, blending, carding, spinning, warping, winding, and twisting yarns. Company's laboratory has also been completely modernized.

Nashua Mfg. Co., Nashua, N. H., plans to spend $1,200,000 for new machinery, equipment, and plant improvements to provide for more efficient





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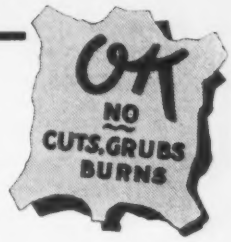

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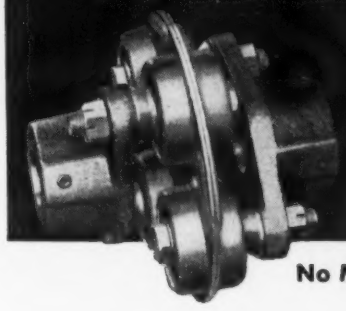

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mill operations in its present location.

Osage Mfg. Co., Gastonia, N. C., owned by Reeves Bros., has Whitin machinery on order for new installation of drawing, roving, and spinning equipment.

Riegel Textile Corp., Ware Shoals, S. C., will spend about $2,000,000 in 1947 for remodeling plant and for installation of new machinery. Of the estimated expense, $1,000,000 will go for building purposes, boiling-off machines, and drying equipment at the Ware Shoals rayon finishing plant; $500,000 for looms.

Textron, Inc., has sold machinery of Nemasket Mill, Taunton, Mass., to Anselm & Co., Shanghai, China. Transaction involved 30,000 spindles.

West Boylston Mfg. Co., Montgomery, Ala., has discontinued manufacture of tire cord and will now produce weaving and knitting yarns. About 600 employees have been laid off temporarily and the mills will close down until new machinery is installed.

Miscellaneous Mill News

Johnson Cordage Co., Prattville, Ala., has work going forward on three new buildings to replace plant destroyed by fire. Now nearing completion, the buildings will provide about 11,000 sq. ft. of floor space. Additional machinery is being purchased.

Leading Embroidery Co., North Bergen, N. J., has purchased No. 3 Unit of Textron Southern, Charlotte, N. C. The firm converts its own fabrics.

Meredith Linen Mills, Meredith, N. H., has installed machinery built by Fairbairn, Lawson, Combe, Barbour, Ltd., of Leeds and Belfast, replacing obsolete machinery which has been in use for more than 40 yr.

Ramie Products Corp., Pittsburgh, Pa., is going to produce ramie fiber, and the Woonsocket Garnetting Co., Woonsocket, R. I., will process it.

Union Winding Co., Pawtucket, R. I., sold more than one third of its mill property on Goff Ave. for approximately $245,000.

Dyeing & Finishing Plant News

Carolina Insulating Yarn Co., Spartanburg, S. C., has completed addition for yarn-dyeing equipment.

Central Franklin Process Co., Chattanooga, Tenn., has let contract to Mark K. Wilson Co., Chattanooga, for one-story addition. Cost reported close to $100,000 with equipment.

Dominion Silk Dyeing & Finishing Co., Ltd., Drummondville, Que., recently awarded contract for one-story extension, 300x70 ft., to print shop building. Extension will be of brick-and-steel construction and cost about $85,000.

Franklin Finishing Co., Paterson, N. J., will occupy site formerly housing Crew Piece Dye Works and will install its own equipment. Operations, which will begin Sept. 1, will include dyeing and finishing.

Hellwig Silk Dyeing Co., Philadelphia, Pa., has requested bids for new addition for storage and distribution. Cost over $70,000, exclusive of equipment. Eugene A. Stopper, Philadelphia, is architect.

Hollywood Loomcraft, Inc., Los Angeles, Calif., processors of rugs, has taken long-term lease on warehouse at Winder, Ga., and after reconditioning will open branch plant there.

National Dye & Finishing Corp., Los Angeles, Cal., was gutted by fire in mid-July causing damage to equipment, fabric, and plant estimated at $500,000. Plans are now being made for new plant to be in operation within six to nine months. Russell B. Coleman is president.

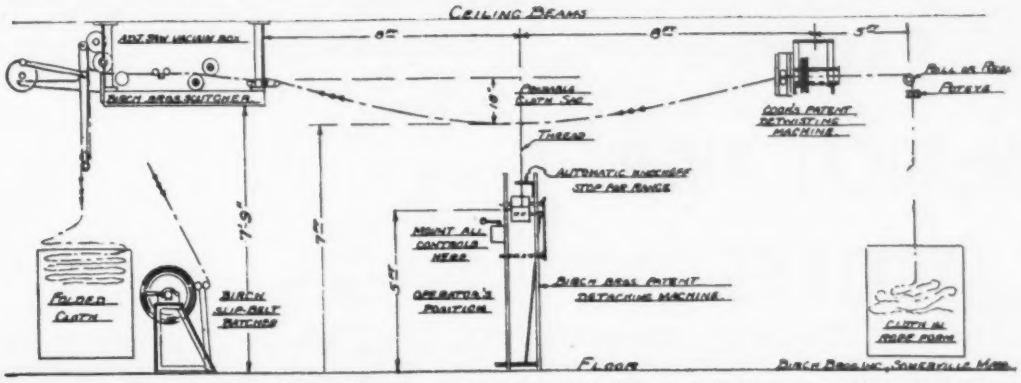
North Carolina Finishing Co., Salisbury, N. C., has let contract to Potter & Shackelford, Greenville, S. C., for addition to mill at Yadkin, N. C., to cost about $85,000, with equipment.

Pepperell Mfg. Co., Boston, Mass., has completed $3,000,000 bleachery in Opelika, Ala.

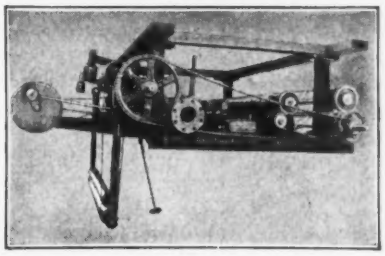
Putnam Textile Printers, a new plant associated with Cold Spring Dyeing & Finishing Co., Cold Spring, N. Y., began production Aug. 1.

Quakertown, Pa., William Z. Bane, Allentown, Pa., architect, has prepared plans for a textile dyeing-and-finishing

AN OPENING RANGE FOR ALL FABRICS



Range removes twist, pulls tacking thread, opens, extracts, folds or rolls in one continuous operation.



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plant at Quakertown, for company whose name is temporarily withheld. Cost over $60,000, exclusive of equipment.

Knitting Mill News

A-Q Mills, Timmonsville, S. C., has installed $25,000 air-conditioning system. Mill also plans dining room and lounge for workers.

Compton Mills Corp., Los Angeles, Calif., has recently incorporated to do warp knitting. Major Rubin is principal.

Ellen-E Hosiery Co., Milwaukee, Wis., recently organized, will begin work soon on one-story knitting mill. Walter Pollotz, Milwaukee, is architect.

Georgia Hosiery Mills, Blakely, Ga., will add equipment which will provide employment for 40 additional operatives.

Glenn Mills, Inc., Lincolnton, N. C., has purchased controlling interest in Wisteria Hosiery Mills, Inc., Gastonia, N. C. and new management has taken over operation of plant. Officers are W. W. Glenn, president; Dan Boyd, vice president; and J. L. Thompson, secretary and treasurer. Corporation operates three spinning mills, one women's hosiery mill and one men's hosiery mill in Lincolnton, and women's hosiery mill in Conover. Machinery in Conover plant will be moved to Gastonia and installed in Wisteria plant.

Harris & Covington Hosiery Mills, High Point, N. C., is installing 60 new Scott & Williams wrap machines with loopers and other equipment, involving outlay of more than $150,000. Mill has acquired 225,000 sq. ft. of property adjacent to plant for mill addition when materials and equipment are available.

Jaclyn Hosiery Mill, Camden, S. C., which will sell 51-gage hosiery in the gray to Bossong Hosiery Mills, Asheboro, N. C., has begun operations. Plant will be entirely equipped with 51-gage machines. J. C. Stewart is president and general manager, and J. V. Wrape is superintendent.

Kinsell & Wright, Ltd., Toronto, Ont., new Canadian firm, will produce men's half-hose on 15 Banner machines with production of around 100 doz. per day.

Koontz Hosiery Mill, Lexington, N. C., has started limited production of men's ribbed hosiery. Company is capitalized at $65,000. Ventry, Prior, Prather, Protus, and Cleno Koontz, all brothers, are operators.

McLaurin Hosiery Mills, Asheboro, N. C., unit of Burlington Mills Corp., has begun transfer of machinery from half-hose plant in Graham, N. C., which will eventually increase production capacity of plant by 50%. Additional machinery has also been installed.

Monarch Knitting Co., Ltd., Toronto, Canada, has awarded contract for extensive interior alterations to mill.

C. E. Newton, of Hickory, N. C., has obtained building permit for construction of hosiery mill which will be one-story and contain about 41 machines. Mill will manufacture men's half-hose.

Ridge Textile Co., Athens, Tenn., has recently been formed to manufacture anklets.

Robert Hosiery Mills, Trappe, Pa., plans one-story addition, to cost over $60,000, exclusive of equipment. G. H. Haag and P. D'Entrement, Jenkintown, Pa., are architects.

Sa-Ro Hosiery Co., Philadelphia, Pa., is installing 48 54-gage machines and improving present equipment at total cost of $135,000.

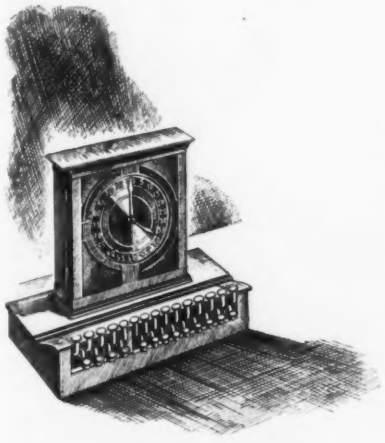
Sellars Hosiery Co., Burlington, N. C., has let contract to J. O. Bayliff, Burlington, for proposed addition to mill.

Spalding Knitting Mill, Griffin, Ga., plans to continue plant modernization program and installation of new equipment. Glazed windows are being replaced by glass block with completion of its new air-conditioning system. Mill is installing 20 new Southern Textile Mfg. Co. looping machines and 45 new Scott & Williams Comet knitting machines. Mill plans installation of additional knitting machines next year. Robert Shappard is president.

Utica Knitting Co., Utica, N. Y., has purchased No. 6 mill of Utica & Mohawk Cotton Mills, Inc., Utica, for reported sum of $95,000. Property includes four-story building that will be used for storage purposes.

Van Raalte Co. will open its textile plant at Bryson City, N. C., this month.

Famous Firsts



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NEWS ABOUT *Men*

Alfred C. Werner, of New York, has been named director and member of executive committee of Burlington Mills Corp. His appointment as president of the company's newly organized subsidiary, Burlington Mills International Corp., was announced recently.

Charles F. Myers, vice president of Wachovia Bank & Trust Co., Charlotte, N. C., has been named chairman of board of administration of retirement system and profit-sharing plan of Burlington Mills Corp., Greensboro, N. C., succeeding **C. M. Vanstory, Jr.,** who resigned recently to become director of the Moses H. Cone Hospital Foundation at Greensboro. Mr. Myers also becomes a trustee of the mill and will serve as liaison officer between it and the Burlington Foundation, a charitable trust.

John Elliott Woltz is now associated with his father, H. O. Woltz, in the operation of Woltz Textile Products, Inc., and Quality Mills, Mount Airy, N. C.

John P. Harrison, formerly president and general manager of the Harrison-Walker Mills, Inc., Shelby, N. C., has become vice president and general manager of Commander Mills, Inc., Sand Springs, Okla.

J. Raymond Fish, formerly plant manager for Textron, Inc., Suncook, N. H., is now assistant to president of Beaunit Mills Inc., Beverly, N. J.

Ernest King has been named treasurer of Aileen Cotton Mills, Biscoe, N. C., and **C. G. Buie,** superintendent and plant manager.

J. Warren Kinsman, general manager of fabrics and finishes department, and a member of board of directors of E. I. du Pont de Nemours & Co., has been elected vice president and designated member of executive committee. He succeeds **Willis F. Harrington** who retired on Aug. 1.

Henry H. Bitler and **Dr. Worth Wade** have been assigned duties as staff assistants of **Dr. Frank H. Reichel,** president of American Viscose Corp., Wilmington, Del.

OLIVER G. EDWARDS, formerly chief chemist and research director for Avondale Mills, Sylacauga, Ala., has accepted an appointment to the staff of the Industrial Research Institute of the University of Chattanooga. He will devote his time to the problems of the textile industry. For the last 12 months, Mr. Edwards has been in Germany as a member of the Quadripartite Commission on Textiles which set the industrial level for postwar Germany. During 1944, he was chairman of the Southeastern Section of AATCC.

J. R. McInvaill has resigned as secretary-treasurer of Wisteria Hosiery Mills, Inc., Gastonia, N. C., and as vice-president of Wisteria Hosiery Sales Corp., New York. He will enter business for himself.

A. J. Conrad, who recently resigned as vice president and secretary of Unity Knitting Co., Union, S. C., plans to return to Little Rock, Ark.

Edgar Wilson, formerly overseer of burling and mending department at Wood Mill of American Woolen Co., Lawrence, Mass., has recently started his own business on commission burling and mending of woolen and worsted fabrics in Methuen, Mass.

Dr. H. W. Swank, plant research supervisor at the Richmond Spruance viscose rayon

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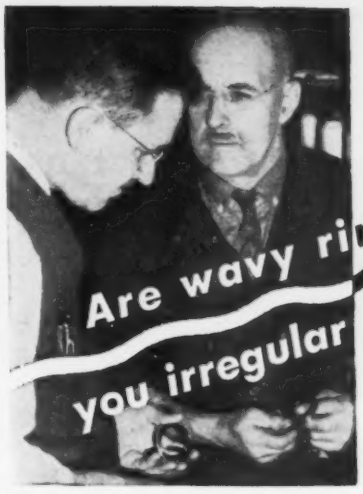

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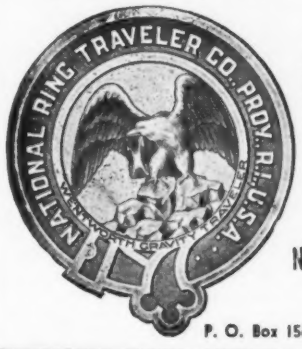

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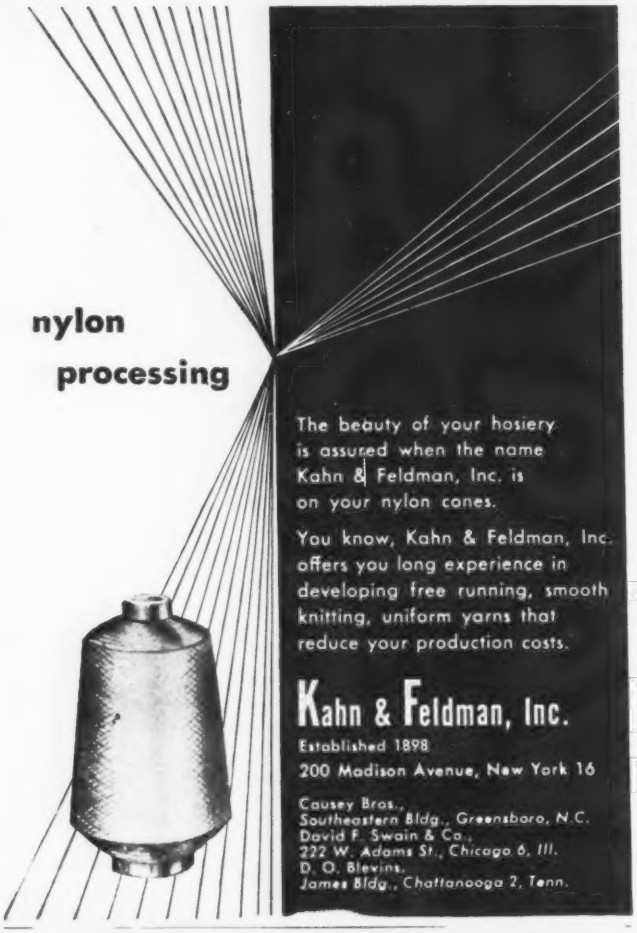

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plant of E. I. du Pont de Nemours & Co., Inc., has been transferred to the company's Waynesboro, Va., works as technical superintendent.

Henry A. Rutherford has resigned as an official of the National Cotton Council to become head of the textile chemistry and dyeing department of the School of Textiles at N. C. State College, Raleigh, N. C. He will replace Prof. A. H. Grimshaw, who asked to be relieved of the duties because of his health. Professor Grimshaw will, however, continue as a professor in the School of Textiles.

Stuart Frederick Shafter, of Lowell, Mass., who has been a laboratory assistant at the Institute of Textile Technology, Charlottesville, Va., since January, 1946, has been appointed assistant professor in the textile department of Texas Technological College, Lubbock, Texas, taking charge of dyeing classes and industry work. L. O. Bunton of New Orleans, veteran of many years in the textile industry, will be lecturer, giving instruction on weaving and design, textile costing, and mill organization.

Joseph Leeming, publicity manager of American Viscose Corp., New York, and editor of the company's house magazine, *Avisco News*, since its first issue appeared in March, 1942, has resigned to become vice president of the Capital Goods & Commodities Corp., an importing and exporting firm. Margaret Gleason, assistant editor of *Avisco News* since November, 1944, has been appointed editor.

John Devenny of Bridgeboro, N. J., has been appointed superintendent of the C. A. Dougherty Cordage Mill in Caracas, Venezuela. He will sail for his new post on Oct. 15.

Bob McKinstry is no longer with Oaks Mills, Bloomfield, N. J., where he was superintendent and wool buyer until the mill was closed recently. Mr. McKinstry was formerly with Peerless Woolen Mills, Rossville, Ga., and Botany Mills, Passaic, N. J.

M. K. Ryan, Jr., technical textile specialist for 24 years, has been made manager of fabric development section of

DR. SIMON WILLIAMS, of New York, has been appointed to the newly-created post of dean of Lowell Textile Institute. He will assist Kenneth R. Fox, president, in the administration of the student body and faculty. The creation of the new post was made necessary by the school's steady expansion which brings the enrollment to nearly 600 students when classes resume this fall. From 1944 to 1946, Dr. Williams was director of research for the National Cotton Council of America, Memphis, Tenn., where he had charge of the activities of one of the largest wartime cotton research groups in the country.

Acetate Div. of E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

Elgin S. Nickerson has been named general manager of fabrics and finishes department of E. I. du Pont de Nemours & Co., Wilmington, Del. Mr. Nickerson succeeds **J. Warren Kinsman.**

E. H. Brown, general manager and assistant treasurer of Carolina Mills, Inc., Dillon, S. C., has resigned. He will remain in an advisory capacity for 60 days.

Joe C. Cobb has been named general superintendent of Pacific Mills plants at Rhodiss, N. C. For last two years, he has been assistant superintendent of company's Hampton Div. at Columbia, S. C.

Gordon W. Enlowe has been appointed production manager of American Thread Co., Dalton, Ga. He was formerly production superintendent of California Cotton Mills, Uniontown, Ala.

Edwin M. Holt, formerly manager of Erwin Cotton Mills Co., Coolcemee, N. C., has been transferred to executive offices of company at Durham, N. C., to assist in supervision

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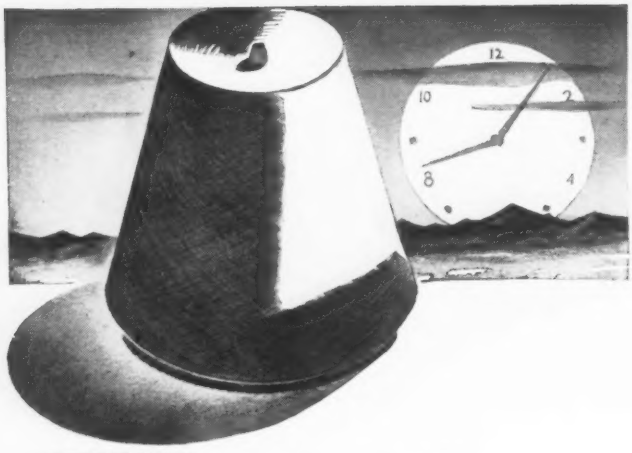

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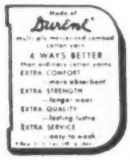

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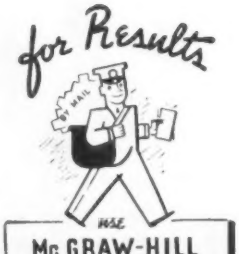

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of manufacturing operations of all of company's plants. **Richard H. Lewis, Jr.,** has been appointed director of production engineering department at Durham, and **Evan G. McIver, Jr.,** has been transferred to executive department to assist in supervision of manufacturing operations.

V. C. Austin, formerly with cotton department of Cannon Mills, Kannapolis, N. C., has transferred to L. T. Barringer & Co., Memphis, Tenn.

W. O. Jelleme is now assistant manager of new products for textile division of United States Rubber Co., New York, N. Y. Mr. Jelleme was formerly associated with Pacific Mills. **A. E. Jury** is manager of the new products department.

S. Frank Jones, formerly purchasing agent and assistant treasurer of Gossett Mills, Anderson, S. C., has become South Carolina representative for Chemical Processing Co.

Wm. H. Kreamer, staff engineer of American Viscose Corp., Meadville, Pa., has become assistant plant engineer at the Roanoke, Va., plant of same corporation.

Read Dunn, Jr., foreign trade director of National Cotton Council, will represent the council on the nine-man cotton mission which left for Japan about July 18. Mission will work out program to finance Japanese imports of American raw cotton. The plan will parallel similar one tentatively offered to Germany recently.

Robinson Gaylord, son of **Robert E. Gaylord,** president of Winsted Hosiery Co., Winsted, Conn., has now become associated with that company.

Irving Frost, former superintendent of dyeing at Arkwright Corp., is now employed by Fall River Dyeing & Finishing Co., Fall River, Mass., as salesman.

Harry B. Garden has been appointed professor of synthetic fibers at School of Textiles, North Carolina State College, Raleigh, N. C., and becomes the first man to fill the Burlington Mills professorship which was made possible last year by a contribution of $65,000 by the corporation to the North Carolina Textile Foundation.

***ARTHUR W. EICHELBERGER** has taken up his new duties as superintendent in charge of production of the A-Q Mills, Inc. He was plant superintendent of A-Q mills of Timmonsville, S. C., from 1941 until 1943. He was also with the tricot division of Celanese Corp. of America, becoming assistant superintendent of that division, and in 1946 plant superintendent of the Bridgewater Textile Corp., of Bridgewater, Va., a tricot subsidiary of Celanese.*

Fred Allen has been named general manager of Bloom Mills, Inc., Gastonia, N. C. He will also act as liaison officer between mill and other operations of Bloom Mills enterprises.

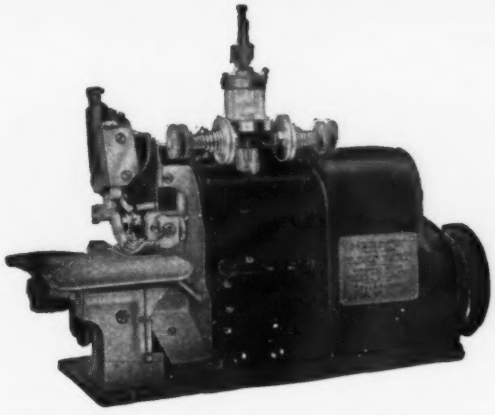
James L. Bryant, formerly with Walther Mfg. Co., Philadelphia, Pa., and Pacific Mills, East Newark, N. J., is now production manager of Masurel Worsted, Inc., Woonsocket, R. I.

John Honig, son of Leo Honig, president, has become assistant to plant manager W. G. Seidl at Anglo Fabrics Co., Webster, Mass.

Dr. H. H. Hopkins, formerly manager of Finishes Div., has been appointed assistant general manager of fabrics and finishes department of E. I. du Pont de Nemours & Co., Inc., Wilmington, Del. **Matt Denning,** formerly assistant manager of the Finishes Div., has been advanced to manager.

Maj. Royston Crewdson, of Parkersburg, W. Va., has been named chief of synthetic textile branch, textile division of SCAP. Prior to joining Army he was with American Viscose Corp.

Joseph Leake, formerly superintendent of weaving, has



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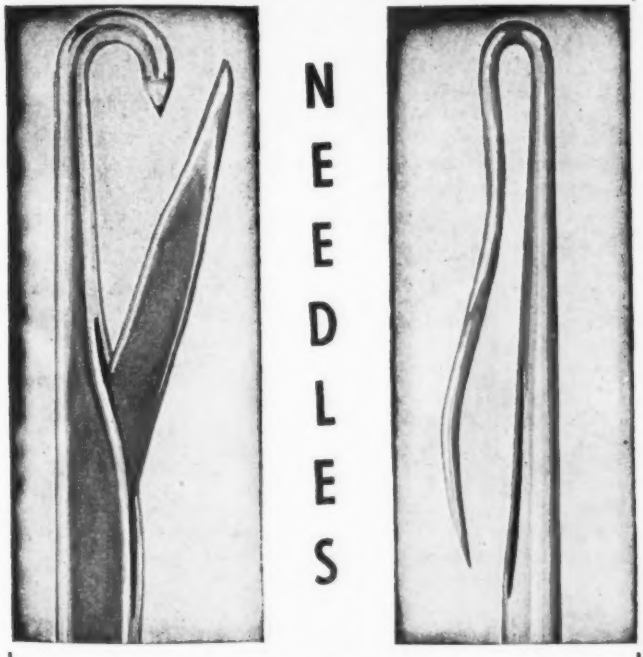

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NEWS ABOUT MEN

been named general superintendent of Howard-Arthur Mills, Fall River, Mass. He succeeds the late Herbert H. Reed, Jr.

Frank L. Byrd of Schoolfield, Va., has arrived in Albertville, Belgian Congo, Africa, and will be stationed there for one year to direct installation of machinery in mill being constructed for manufacture of fabrics for colonial consumption only. Mill will contain 20,000 cotton spindles and 500, 40-in. Draper looms.

Clarence J. White, Jr., who recently left Callaway Mills after 24 years' association has joined Dana M. Martin Co., Inc., Akron, O., to help supervise cotton yarn and industrial gray goods department.

C. A. H. Remick, former superintendent of Holeproof Hosiery Co., London, Ont., has purchased an interest in the Forest City Knitting Co., Ltd., Glencoe, Ont., and has been named resident manager.

Oliver G. Edwards, director of research for 10 years at Avondale Mills, Sylacauga, Ala., before going to Germany last year, has become member of staff of Chattanooga Industrial Research Institute.

Charles Mears has been appointed manager of new nylon plant being constructed near Chattanooga, Tenn., by E. I. du Pont de Nemours & Co., Wilmington, Del.

Lewis Hamer has joined Greenwood Mills to handle fabric development of rayon and cotton lines of Greenwood Cotton Mill, Mathews Mill and Ninety-Six Cotton Mills, all of Greenwood, S. C.

J. Alan Torr, who has been overseer of carding at Coe Woolen Co., Worcester, Mass., has resigned.

Harry W. Thomas is now overseer of spinning at Atlantic Mills, Stottville, N. Y. **Clarence Drobner** has been promoted to overseer of dressing.

Leon Smith is acting overseer of dyeing at Winthrop Mills, Winthrop, Me.

Leslie C. Redding, overseer of designing, has left Waucantuck Mills, Uxbridge, Mass., to go to Lorraine Mills, Pawtucket, R. I.

Davis A. Provost, of Woonsocket, R. I., is now overseer of dyeing at American Woolen Co.'s Webster Mill, Webster, Mass.

Hugh Rowlandson, formerly overseer of dyeing for Wyandotte Worsted Mills, Waterville, Me., is now overseer of dyeing at Kennebec Mills of American Woolen Co., Fairfield, Me. He succeeds **Joe Ricard,** resigned.

Charles Usher, who has been overseer of dyeing for Beaver Brook Mill of American Woolen Co., Collinsville, Mass., has resigned.

Frank L. Hill has been appointed assistant superintendent of Wennonah Cotton Mills, Lexington, N. C. He was formerly construction engineer for Coble Dairy Products, Inc.

P. E. Brodie, dyer for Bigelow Sanford Carpet Co., Amsterdam, N. Y., has resigned.

James C. Carmark has become overseer of dyeing for Baxter, Kelly & Faust, Philadelphia, Pa.

William Esslinger has been appointed assistant superintendent of Saratoga Victory Mill, Albertville, Ga. His father, **William Esslinger,** operated the first loom that produced print cloth in the Merrimack Mill.

W. H. French, of Cumberland, Md., is now overseer of dyeing for General Ribbon Mills, Catasauqua, Pa.

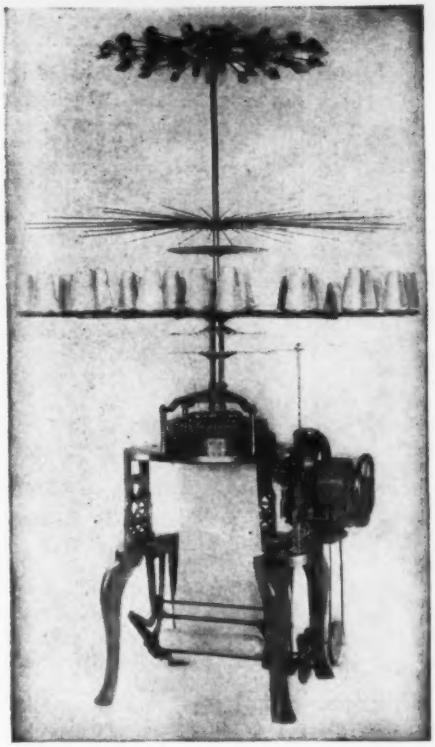
B. A. Humphrey, superintendent, has left Sebago Woolen Mills, Bridgton, Me.

Fulton Hutchinson, formerly assistant superintendent at Huntsville Mfg. Co., has been named superintendent of Saratoga Victory Mill, Guntersville, Ala.

Joseph Kimball is overseer of dressing for Merrimack Mfg. Co., Lowell, Mass.

Edward Knott, formerly with Jeffrey Finishing Co., Slocum, R. I., has been appointed overseer of dyeing for Dorlexa Finishing Co., Woonsocket, R. I. He succeeds **James Carmark,** who joined Baxter, Kelly & Faust, Philadelphia, Pa.

John B. Moran, who has



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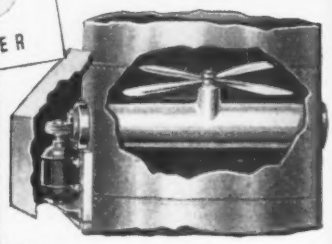

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NEWS ABOUT MEN

been overseer of dyeing for American Woolen Co's. Webster Mill, Webster, Mass., has resigned.

Lester Cochrane has been appointed carding overseer at Rockford Mitten & Hosiery Co., Rockford, Ill. **John J. Malone** will be second hand in card room. Mr. Cochrane was previously with Marshall Field and Mr. Malone with Oakes Mills.

Joseph T. Dolan has been appointed to take charge of finishing at Beaver Brook Mills of American Woolen Co., Lowell, Mass. He was formerly overseer of finishing at National & Providence Mills, Providence, R. I., and at Mayo and Brown Mills, Dover-Foxcroft, Maine.

H. C. Estes, superintendent of Inman Cotton Mills, Inman, S. C., has resigned.

Emil Tegtmeier, who has been made overseer of day weaving at Atlantic Mills No. 4, Stottville, N. Y., is replacing Mr. Stoddard who has resigned.

E. W. Human is now associated with Hartsville Cotton Mill, Hartsville, S. C., as night carder. Mr. Human was formerly with American Yarn & Processing Co., Mt. Holly, N. C.

Walter Gosnell has resigned as assistant superintendent of Beaumont Mfg. Co., Spartanburg, S. C., and has accepted position of superintendent of Saxon Mills, Spartanburg.

Fred Blair has taken spinner's position with Hudson Woolens, Inc., Kingston, N. Y. He was previously with Miltonia Mill, Milton Mills, N. H.

William Philips, overseer of weaving, has left Yantic Mills, Yantic, Conn.

James A. Rutledge has assumed new duties as superintendent of Bowling Green Spinning Co., Bowling Green, S. C.

J. F. Plexico has become superintendent of Linwood Cotton Mill, Lafayette, Ga., succeeding **T. C. Giles,** who resigned to enter the mercantile business there. **Russell Fennell** has been named assistant superintendent of the mill.

George E. Racicot is now overseer of spinning at Matson Mills, South Glastonbury, Conn., succeeding **George E. Tryon,** who has joined American Woolen Co., Webster, Mass.

Eugene Bourgeault has left Boott Mills, Lowell, Mass., to accept position as overseer of spinning at Berkshire Fine Spinning Associates, Inc., Warren, R. I.

Clarence Coleman is now overseer of carding at Saxony Corp., Norwich, Conn.

George E. Kunhardt, Jr., formerly manager of Lawrence Mfg. Co., Bristol, Pa., has been appointed superintendent of Atlantic Mills, Stottville, N. Y.

Charles Cook has become general overseer of the second shift of Spartan Mills, Spartanburg, S. C.

Leon Piela has been named overseer of spinning at Hill Woolen Mills, Norwich, Conn.

R. G. Pye, formerly at Mayfair Mill, Arcadia, S. C., is now overseer of weaving at Textron Southern, Inc., Williamston, S. C.

Clarence Rock has been appointed overseer of the yard department of Nashua Mfg. Co., Nashua, N. H., to succeed **Edward C. Brown,** who retired after heading the department for 39 yr.

Richard J. Steffens, for several years with the late George Goodspeed at Wilton Woolen Mills, Wilton, Me., and more recently superintendent of Monument Mills, Housatonic, Mass., is now engaged in woodworking operations at Strong, Me.

Chester Woodward, formerly night superintendent, has been appointed superintendent of Textron, Inc., Suncook, N. H., to succeed **Thomas J. Silke,** who resigned. Mr. Woodward, formerly with Paul Whitin Co., Northbridge, Mass., came to the Suncook plant in 1945 as superintendent of the weaving department.

Harry E. Anderson has resigned as foreman of color shop at Windsor Print Works, North Adams, Mass.

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Single room with bath from $3.00
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Charles F. Rogers, Jr. — Manager

Obituary

J. E. Sirrine

Joseph Emery Sirrine, 74, one of the South's best known industrial engineers and senior partner in the firm of J. E. Sirrine & Co., Greenville, S. C., died at his home Aug. 7 following three years of declining health. A native of Americus, Ga., Mr. Sirrine was a graduate of Furman University and founded his engineering firm in 1902. He was chairman of Brandon Mills, Greenville; vice president of four other South Carolina textile concerns, and a director of 19 other textile companies throughout the Southeast. In the First World War he was chairman of the Price Fixing Committee for Cotton Textiles and during World War II he served as a member of the Cotton Mill Industry Advisory Committee for WPB. His civic affairs were almost as widespread as his professional work. Mr. Sirrine was chairman of the board of the J. E. Sirrine Textile Foundation, Inc., an institution dedicated to the improvement of textile education in South Carolina. Funds from the foundation now total about $1,500,000.

W. C. Bradley, 84, chairman of the board of Eagle & Phenix Mills, Columbus, Ga., died July 26. He had extensive holdings in Bibb Mfg. Co. and was a member of that company's board. He was chairman of Columbus Mfg. Co. until its recent sale to West Point Mfg. Co.

Alonzo G. Dudley, 66, president of Climax Hosiery Mill and Athens Mfg. Co., Athens, Ga., died Aug. 3. Mr. Dudley established the Climax Hosiery Mill in Athens as a young man and in 1915 acquired an interest in Athens Mfg. Co. At the time of his death, he was sole owner of the latter company.

Philip A. Green, 64, chairman of the board of Green Textile Associates and president of the P. A. Green Co., Inc., died July 23 at Beach Haven Crest, N. J.

Walter W. Cort, 56, who at one time in association with his grandfather operated Globe Woolen Mills, Utica, N. Y., died July 29 at Utica.

Floyd O. Childers, 55, owner of Childers Hosiery Mill, Hildebran, N. C., was instantly killed Aug. 11, when the tractor with which he was plowing his farm near there, overturned.

B. C. Garrison, 62, president of Garrison Hosiery Mill, Burlington, N. C., died Aug. 6. He had served as superintendent of the old Whitehead Hosiery Mill for 27 years before the company was dissolved in 1935 when he entered business for himself.

Henry Hemmerdinger, 66, president of Atlas Waste Mfg. Co., Inc., Glendale, L. I., N. Y., died recently.

Charles H. Perkins, 82, president and treasurer of the Crane Mfg. Co. in the Lakeport section of Laconia, N. H., died Aug. 4.

Fred A. Sturm, 61, retired years in the knitting business in Utica, N. Y., died recently. Following service with Utica Knitting Co. and Oswego Knitting Co., he organized the Ritesize Underwear Co. He was later in the cotton yarn business for himself in Utica and in 1923 he became local agent for Bostitch Sales, Inc., of Boston, with which he continued until his retirement in 1942.

George M. Montgomery, 90, chairman of the board of Montgomery Co., Windsor Locks, Conn., died recently. He had been president of the company until his retirement five years ago.

Louis Bachmann, Sr., 75, founder and retired president of L. Bachmann & Co., Inc.,

How to Recondition and Rustproof Reeds

LOOKING for a safe way to remove rust from steel reeds? If so, try this easy Oakite technique:

Simply brush reeds in a recommended solution of Oakite Compound No. 36. Speedy action of this mildly acidic cleaner softens and removes rust formations. Does not harm reed surfaces. Involves no fire hazards or unpleasant fumes. Then, to protect reeds in storage, apply Oakite Special Protective Oil to seal out indoor rust.

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When You Change Your Address . .

It will help us keep your copies of TEXTILE WORLD coming to you each month if you will promptly advise us of any change of address.

Director of Circulation,
TEXTILE WORLD,
330 West 42nd St., New York 18, N. Y.

Please change the address of my Textile World subscription.

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New Company Connection .....

New Title or Position .....

NEWS ABOUT MEN

New York, died Aug. 1 at Springdale, Conn. Mr. Bachmann retired last January and became chairman of the board.

George L. Hardwick, 56, president of Hardwick Woolen Mills, Inc., Cleveland, Tenn., died in Atlanta, Ga., Aug. 10.

Fred A. Strum, 61, retired founder and president-treasurer of United Wool Piece Dyeing & Finishing Co., Passaic, N. J., died recently.

David Oakes, former president of Thomas Oakes & Co., woolen mills, Bloomfield, N. J., died recently. Mr. Oakes and his brother, George Oakes, both grandsons of the founder of the mill, operated it until 1945.

Nathan D. Bill, 91, one of the founders of Springfield Knitting Co., Springfield, Mass., died recently.

John T. Mercer, 73, long known in the New England textile industry as agent for Arlington Mills, Lawrence, Mass., died recently in London, England. Mr. Mercer retired in 1939.

George W. Walker, Southern representative for Sterling Ring Traveler Co., for the last 35 years, died July 17, at his home in Seneca, S. C.

Abraham Booth, long active in the affairs of the National Association of Woolen & Worsted Overseers and a former president of that body, died recently at Woonsocket, R. I.

Herbert H. Read, Jr., 56, superintendent of Howard-Arthur Mfg. Co., Fall River, Mass., died July 7 at Swansea, Mass. Mr. Read was at one time associated with Davis Mills, Durfee Mills, American Printing Co., Grosvenordale Mfg. Co., and Stevens Spinning Mills.

Frederick C. Weihenmayer, 76, retired woolen yarn manufacturer died July 17 at Philadelphia, Pa. Before his retirement he was with the firm of William J. Weihenmayer.

Sigmund Cahn, 76, vice-president of Edmond Weil, Inc., and a founder of the Alma Knitting Mills, Gloversville, N. Y., died July 17 in New York.

Gilbert T. Ragan, 38, sales manager for Ragan Knitting Co., Thomasville, N. C., died recently at High Point.

Dennis T. McCarthy, active in the Boston wool market for over 50 years, died recently at Newton, Mass. Mr. McCarthy began his career with Hartley & Co. and was also associated with English & O'Brien.

Michael Weigand, 70, a retired foreman of the Singer Mfg. Co., died July 21 at Elizabeth, N. J. He retired in 1939.

William T. Ainsworth, 73, paymaster of Wamsutta Mills, died recently at Nantucket, Mass.

Albert Gee, 74, former vice president of Hancock Knitting Mills, died July 20 at Baltimore. He retired as vice president of the Hancock firm in 1937.

Mathias H. Miller, general manager of Fireguard Fabrics, a subsidiary of Turner Halsey Co., died recently at Lynbrook, L. I.

Raymond D. White, 41, sales manager for Continental Mills, Inc., Philadelphia, Pa., died July 26 at Plainfield, N. Y. Mr. White had been with Continental Mills for 25 years.

Edgar A. Robertson, 67, formerly sales manager and a director of Montreal Cottons, Ltd., Montreal, Que., died recently.

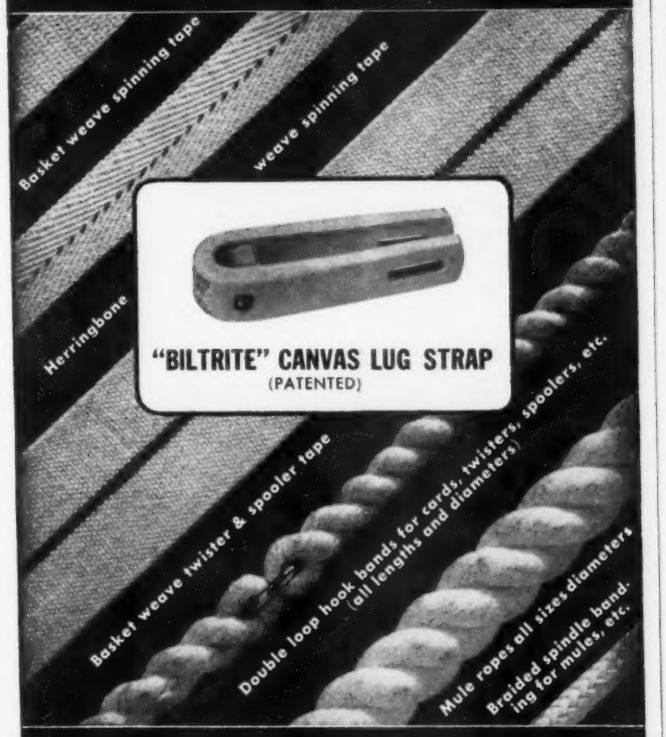
Clarence Dana Mooney, 69, assistant purchasing agent of Scott & Williams, Inc., Laconia, N. H., died in that city Aug. 6.

Robert Jeffers, 54, sales representative of the Martex Div. of Wellington Sears Co., Inc., died July 1 in Lakewood, Ohio.

William C. Casey, 45, of Providence, R. I., died Aug. 15. He was at one time overseer in the twisting department of Wanskuck Mill.

Patrick F. Kennedy, 59, died Aug. 16 at Yonkers, N. Y. Mr. Kennedy for more than 40 years had been on the office staff of the Alexander Smith & Sons Carpet Co., recently serving in the sales division.

LAMBETH PRODUCTS
FOR SPINNING, TWISTING, SPOOLING, WEAVING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Smooth - Light - Durable

Designed for
All Textile, Garment, and
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Poughkeepsie, N. Y.

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It answers the $64 Question

"Is it up to specifications?"—your *Scott Tester gives you a definite answer, expressed in a "picturized" graph which is literally read. Our many models test for tensile, hysteresis, "crepeage" and from single fibre to 1 ton tensile.

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SCOTT TESTERS, INC. 95 Blackstone St. Providence, R. I.
Standard of the World

WE'VE LEARNED A LOT IN OUR 50 YEARS

50 years of specialized experience in producing tanks and tubs for the textile industry *has taught us some things that will be valuable to you!*

Let us tell you about our complete Caldwell Service, which includes Stainless Steel-lined tanks and tubs — round, rectangular and special shapes.

Catalog on request.

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MEN WANTED
POSITIONS OPEN

MANAGER for large Southern mill. Must be particularly good in cutting, sewing and dyeing rayon fabrics.

SUPERINTENDENTS for the following mills: worsted yarn, Bradford system (South America); worsted yarn mill; weaving plastic fabrics plant; woolen carpet yarn mill; cotton thread mill; cotton yarn mill (foreign) $10,000-$12,000 year; fixer, tape webbing looms.

Rayon-silk goods technician, position in N. Y. City; woolen, cotton and worsted goods styler for N. Y. City; teacher for cotton-rayon weaving and loom fixing, textile school; woolen and worsted cloth mill designers and assistant superintendents; designing and sales engineers for firms building knitting machinery.

OVERSEERS for the following departments: cotton dyeing (Canada); woolen and worsted finishing for New England, Western and Southern mills; braiding (South) $5,000 year; pad and jig dyeing, cotton and rayon fabrics (North) $75-$125 week; woolen spinning (Furbush mules); cotton carding (Canada); cotton spinning (N. E.); woolen carding for tapes and ring doffers; woolen and worsted piece dyeing (N. E.); woolen spinning to do own fixing, 2nd shift (N. E.); worsted-woolen mending; silk and rayon throwing; carpet finishing; worsted yarn dyeing (Canada); twisting and reeling (Canada); cotton dyeing for laboratory work and chemical demonstrating.

SECOND HANDS for the following departments: woolen finishing; cotton piece goods dyeing, $60 (N. E.); package dyeing; rayon and cotton weaving; woolen spinning frames.

Tricot knitting machine fixer; chemists and colorists; shirt factory foreman for stitching, pressing and cutting; cotton loom fixer, $65; woolen box loom fixer (N. Y. State); woolen card fixer; Draper cotton loom fixer (N. E.); woolen shear tender; pattern weaver; sewing machine fixers; fixers for Komet and Banner Wrap machines; Tompkins machine fixer; Foreman batten builder; loom fixers for So. Amer.; cotton-rayon slasher tenders.

We invite correspondence (confidential) with mill executives seeking new positions and employers seeking new executives.

CHARLES P. RAYMOND SERVICE, INC.
294 Washington St., Boston 8, Mass.

Over 45 years Confidential Employment Service for Textile Mills

Resident Business Manager

Required for worsted yarn mill in New England by integrated textile organization. Must have excellent labor relations background and intimate knowledge of all phases of worsted yarn production; and successful record background. Top Salary. State all pertinent details in first letter. Replies will be held in strict confidence.

P-1458, Textile World
330 W. 42 Street, New York 18, N. Y.

AVAILABLE

MILL EXECUTIVE

With 22 years experience in Silks, Rayons and Nylons, Jacquard and Shaft work tie and dress goods. Phila. Textile Institute graduate.

PW-1589, Textile World
330 West 42nd St., New York 18, N. Y.

SEARCHLIGHT SECTION

(Classified Advertising)

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60 cents per line, minimum 4 lines. To figure advance payment count 5 average words as a line. *Positions Wanted* (full or part time salaried employment only, ½ the above rates payable in advance. *Box Numbers*—Care of publication New York, Chicago or San Francisco offices count as 10 words. *Discount* of 10% if full payment is made in advance for 4 consecutive insertions.

Individual Spaces with border rules for prominent display of advertisements.

The advertising rate is $6.75 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

An advertising inch is measured ⅞" vertically on one column, 3 columns—30 inches—to a page.

T.W.

NEW ADVERTISEMENTS received by 10 A.M., September 24 will appear in the October 16th issue subject to limitations of space available.

POSITIONS VACANT

SUPERINTENDENT WANTED for small Bradford spinning mill. Must be familiar with all phases of knitting yarn manufacturing. State experience in first letter. P-1653, Textile World, 330 W. 42nd St., New York 18, N. Y.

ASSISTANT SUPERINTENDENT wanted for Pennsylvania rayon weaving mill. Draper automatics. Warping and slashing. Our organization knows about this ad. P-1776, Textile World, 330 W. 42nd St., New York 18, N. Y.

WANTED—EXPERIENCED loom fixer to act as foreman of modern SK—6 Crompton & Knowles automatic looms plant. P-1623, Textile World, 330 W. 42nd St., New York 18, N. Y.

SEWING MACHINE fixer wanted by large upstate New York underwear manufacturer. State experience. All correspondence confidential. P-1751, Textile World, 330 W. 42nd St., New York 18, N. Y.

WANTED—ASSISTANT Superintendent for a pile fabric mill located in New England. He must be not over 40 years of age, must have some experience in office work, must have some executive ability and be familiar with the textile business. P-1930, Textile World, 330 W. 42nd St., New York 18, N. Y.

WANTED: GENERAL Manager and Sales Executive to take charge of knitting mill consisting of 50 Tompkins Knitting Heads and complete finishing department. He must be acquainted with the trade and able to locate business and make sales. P-1931, Textile World, 330 W. 42nd St., New York 18, N. Y.

POSITIONS WANTED

POSITION AS Superintendent or Carder on cotton. Carder 4 best mills in New Bedford, Mass., for 20 years, also a fifteen million dollar fine fabric plant 8 years. Superintendent, New England mills, New York state, South, West and Mexico on everything that uses cotton from bats and ropes to India Lawns and 80" to 100" yarns daily. Details if interested. Address W. R. W., 16 Dervey St., Easthampton, Mass.

GENERAL MANAGER or Superintendent on menswear or womenswear woolen and worsted manufacturing experienced all departments, production, personnel, wool buying, fabricating, designing. Textile school graduate. Age 40. Minimum salary $6,500 . PW-1329, Textile World, 330 West 42nd St., New York 18, N. Y.

INDUSTRIAL WASTE. Civil engineer with ideas and sewage treatment experience seeking connection with industry desiring to purify and recover industrial waste. PW-1820, Textile World, 330 W. 42nd St., New York 18, N. Y.

GRADUATE TEXTILE School mechanical engineer, fine experience, presently engineering department, textile firm. Desires connection. PW-1592, Textile World, 330 W. 42nd St., New York 18, N. Y.

WANTED — POSITION as Superintendent woolen yarn mill or Carnet mill will consider also position woolen carder. Willing to go anywhere. Address PW-1849, Textile World, 520 N. Michigan Ave., Chicago 11, Ill.

SUPERINTENDENT OF knitting with fine mechanical background. Experienced on Rib machines. Wildman Spring Needle Supremen and Brinton. PW-1909, Textile World, 330 W. 42nd St., New York 18, N. Y.

DESIGNER ASSISTANT Superintendent textile graduated 13 years practical experience. Good expert in fabrics construction styling analysis dobby and jacquard. 31 years of age. Could go foreign countries. PW-1903, Textile Word, 330 W. 42nd St., New York 18, N. Y.

Don't Forget the BOX NUMBER

When answering the classified advertisements in this magazine. It's our only means of identifying the advertisement you are answering.

3 Exceptional Sales Representative POSITIONS

New England • • Middle Atlantic South

A nationwide chemical manufacturer has open three active territories for qualified men of high sales ability. Only three positions are open, but each commands good salary and commissions. Applicants must be thoroughly familiar with the textile industry, have proved sales ability, technical education, and preferably be between the ages of 30-40. Write fully stating education, experience and details you consider pertinent. This is a remarkable sales opportunity, so do not delay.

RW-1750, Textile World
330 West 42nd Street, New York 18, N. Y.

POSITIONS WANTED

POSITION WANTED as an overseer in a rayon mill, has complete experience in making all kinds of cloth. Knows the textile business from the beginning to the finish. 35 years practical experience on 2 x 1, 4 x 4 and draper looms, and ribbon looms. Can give good reference. PW-1706, Textile World, 330 W. 42nd St., New York 18, N. Y.

DYER, 20 years experience all fibres, also bleaching, mercerizing and finishing. Available soon. PW-1586, Textile World, 330 W. 42nd St., New York 18, N. Y.

TEXTILE EXECUTIVE. Young man 36 years of age, complete textile background in worsted industry, from fleece to finished fabric is looking for an opportunityl to become associated with a progressive concern. Phil. Textile School graduate, married, one child, presently employed in an executive capacity, desires to make a change where an expanding opportunity is open for an aggressive young man. PW-1908, Textile World, 330 W. 42nd St., New York 18, N. Y.

KNITTER — MECHANIC—Designer—fabrics. Lindley Rachel—Wildman—Brinton—Take charge of warfing. 25 years experience. Available immediately. Eastern states. Alfred Forbes, 4327 Glenmore Ave., Baltimore, Maryland.

BOSS DYER. Now employed, middle age, very wide experience in cotton, rayon, shoddy and wool, piece dyes, yarn, and stock. American and married, steady. PW-1887, Textile World, 330 W. 42nd St., New York 18, N. Y.

TEXTILE TECHNICIAN, extensive designing and analyzing background available to make lay-outs, shaft and jacquard designs on a part time basis. PW-1919, Textile World, 330 W. 42nd St., New York 18, N. Y.

PART TIME WORK WANTED

ENGINEER INDUSTRIAL Graduate, licensed, professional. Available for part-time work installing or checking operating and production methods, incentive plans, quality controls, training systems, job evaluation, labor relations. Former chief, large rayon corporation. Highest references. South preferred. PTWW-272, Textile World, 330 W. 42nd St., New York 18, N. Y.

CONTRACT WORK WANTED

WANTED: COMMISSION Spinning Contract for Carpet Yarn or Coarse Yarn. 5 sets and 4 mules available. CWW-1745, Textile World, 330 W. 42nd St., New York 18, N. Y.

WANTED

Young man to head Sample Production Department of Philadelphia mill to weave broad and narrow fabrics, also Tricot knit samples; knowledge broad fabric weaving and construction essential; ability to fix looms desirable.

P-1879, Textile World
330 W. 42nd St., New York 18, N.Y.

SUPERINTENDENT NEEDED

By Internationally Known Corporation

For a new modern weaving mill running on synthetics. Man should have degree in textile engineering, experience and ability in handling people, and have had experience on plain and fancy work.

Preferred age 30-45. Location of plant Georgia. Compensation commensurate with ability and experience. If interested, please reply giving the complete summary of educational and experience qualifications and present salary.

P-1891, Textile World, 330 W. 42nd St., New York 18, N. Y.

WANTED

PLANT MANAGER

for progressive dyehouse-acetate, rayon piece goods, Paterson area.

To supervise plant operations.
Applicants must have dyeing and finishing experience.

Chemical background desirable, but not essential. Age—maximum 40 years.

Excellent opportunity for right man.

State experience, age, salary desired, etc.

P-1923, Textile World
330 West 42nd Street, New York 18, N. Y.

WANTED

DYER

● We are interested in opening modern skein dyeing plant in New England. Partner wanted to do managing and dyeing supervision.

P-1725, Textile World
330 West 42nd Street, New York 18, N. Y.

POSITION OPEN

COMPETENT YARN DYER, medium size plant, located in Pennsylvania, equipped with units of automatic Rotary Arm Smith Drum Skein Dyeing Machines. We require a capable individual experienced in handling Direct, Fast Dye, Vat Dye, etc. principally Rayons and Silk. Excellent Opportunity.

P-1863, Textile World
330 West 42nd Street, New York 18, N. Y.

ASSISTANT TO GENERAL SUPERINTENDENT

Progressive and growing Rayon Weaving Firm operating several plants in Pennsylvania has opening for textile school graduate with several years of practical mill experience. Good opportunity for advancement to intelligent and ambitious young man.

P-1790, Textile World
330 West 42nd Street, New York 18, N. Y.

WANTED *Time Study* ENGINEER

for Philadelphia mill weaving and dyeing narrow fabrics. Submit resume; references. Reply

P-1877, Textile World
330 West 42nd Street,
New York 18, N. Y.

SUPERINTENDENT

For knitted outerwear mill. Midwestern mill requires services of man with experience manufacturing men's and boys' high quality sweaters. Must be capable of supervising all manufacturing operations. Please submit complete details of experience in first letter. All replies confidential.

P-1814, Textile World
520 North Michigan Ave., Chicago 11, Ill.

WANTED

MILL AGENT

Agent to represent small hosiery mill producing men's cotton hose to jobbers & wholesale houses.

RW-1920, Textile World
330 West 42nd Street, New York 18, N. Y.

KNITTING FOREMAN

WANTED

Thoroughly experienced to take charge of knitting and finishing cotton and rayon fabrics in Ontario (Canada) Mill. Reply stating previous supervisory experience, types of knitting machines and fabrics with which familiar and salary expected to Box P-1890. Advertiser's own staff have been advised.

P-1890, Textile World
330 West 42nd Street, New York 18, N. Y.

WANTED

Plant Manager for complete charge of large Screen Printing Plant in New England. Should have Colorist background and must be capable of handling labor. Excellent opportunity for right man. Give full details of past experience in first letter.

P-1833, Textile World
330 West 42nd Street, New York 18, N. Y.

ADDITIONAL SELLING AND BUSINESS OPPORTUNITY ADVERTISING *on page 342*

CRACKERJACK

Manufacturers Agent

Now representing two companies in the textile and wire industries selling heavy machinery has some time available and would like to represent one or two additional companies in the North Atlantic States on a commission basis.

RA-1114, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED •

TEXTILE PLANT

Large financially powerful diversified organization wishes to add another enterprise to present holdings.

CASH PAID

FOR CAPITAL STOCK OR ASSETS

Existing Personnel Normally Retained

Box 1222, 1474 B'way.,N.Y.18,N.Y.

SELLING AGENT

Toronto, Canada

Experienced woollens and worsteds. Established connections with men's and ladies' manufacturers, jobbers and retail outlets.

Will competently represent American mill in leading textile centres of Canada —Toronto, Montreal.

RA-1767, Textile World
330 West 42nd Street, New York 18, N. Y.

EXPORT TO INDIA

Large Export and Import House in India desires to import products of American firms. Best references. Can handle transactions involving over a million dollars.

SEWKISSENDASS DAULALL
9 Pageyaputty St., Calcutta, India

ATTENTION
ALL INTERESTED PARTIES
Seaming & Rolling
On All Types of Remnants
Done to your Specifications
TEXTILE SEAMING CO.
146 Greene St., N. Y. 12 Canal 6-5830

FOR LEASE
MILL BUILDINGS

up to 50,000 sq. ft. Modern Dye House. 300 HP Process Steam Boilers. 200 HP Water-power. Abundant soft process water. Sprinklers, Light, Heat. Ideal for Weaving, Dyeing & Finishing Plant or, Machine Shop.

PAUL M. BROOMFIELD
Carolina Rhode Island

CUBAN FIRM

With best connections, large experience, staff of specialized salesmen, solicits exclusive representation of American manufacturers of piece goods for Cuban market, on commission basis.

AURELIO A. DE ROJAS
P. O. Box 1354
HAVANA, CUBA

WANTED

Narrow Fabric ELASTIC-MILL

Must have sufficient steam facilies for dyeing and finishing.

Will consider outright purchase or participation with present management. Latter preferred since technical knowledge is wanted.

B. O. 1723 Textile World
330 W. 42nd St., New York 18, N. Y.

PROFESSIONAL SERVICES

ABERT CO.
Consultants on Textile Machinery
Complete Installation and Operation of Cotton and Wool Spinning Plants
Also, Machinery and Supplies for Weaving, Spinning & Twisting.
Languages—Spanish & French.
92 Fulton St., N. Y. 7, N. Y.

Attention

RAYON FABRIC PRODUCERS!

Long Established New York Converter Enjoying Wide Distribution, Seeks Additional Resources on All Types of Rayon Cloths, including Fabrics for Printing. Will Work on Mill Representation Bases or will Purchase Greige or Finished Fabrics. References Exchanged.

RA-1941, Textile World
330 West 42nd Street, New York 18, N. Y.

FINISHING SERVICE WANTED

Contact with plant having suitable equipment for special slack mercerising of 58" heavy Cotton Sateen for approximately 15% shrinkage warp and filling, in 20% caustic soda, to be followed by washing and impregnation with magnesium chloride. Drying at low temperature.

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WANTED ADVERTISING PAGE 354

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2—54' x 60" D&F 2-cylinder iron Shoddy Cards with feeders
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1—64" P&W Doubling & Rolling-up Machine with clock
1—Set 8 Textile Vertical 48" x 23" Copper Dry Cans
1—Set 20 H.P. Butterworth 108" Dry-cans, dryer
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2—26" Tolhurst Extractors, belt driven
1—32" Tolhurst Copper Basket Extractor
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1—210 spindle Draper Twister, 2" ring
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1—Box S.S. 55" wide 10" deep—1—immersion roll
1—50" pad, horizontal for vat deying.

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5—2 Roll BRUSHES, 60" to 72".
2—5 Roll BRUSHES, 66".
2—EMBOSSING CALENDERS, 54".
1—Set 23 DRY CANS, 74x23".
1—Set 6 DRY CANS, 72x36".
1—FOLDER, 36", 1 yd. folds.
2—MIXING KETTLES, 50 and 200 gal. units.
1—VACUUM EXTRACTOR, 78".
4—QUILLERS, 378 spdls. ea., 2½" gauge.
10—SHEARS, 63 to 66", single & double blade.
5—Single Roll TIGERS, 63 to 70".
2—Double Roll TIGERS, 66".
1—SHEAR GRINDER, 72".
1—SLASHER, 16 Cans, 140" x 23".
1—3 Compartment, WARP DYEING unit.

CARDING, SPINNING and WEAVING

1—BREAST, 60", Metallic Wire, complete.
2—Sets WOOLEN CARDS, 48x48", 4 cylinder, feeds, condensers, fully clothed.
3—Sets WOOLEN CARDS, 60x48", 3 cylinder, feeds, tape condenser, fully clothed.
1—WOOLEN CARD, 60x54", 4 cylinders, feed, tape condenser, fully clothed.
1—CLEANER, Buckley Blade Beater.
1—CONDENSER, Tape, for 60" Card.
1—GARNETT 3 cylinder 48x20".
2—JACKSPOOLERS, 40", 60 ends each.

LOOMS As Follows:

13—NARROW FABRIC, 6 to 54 space, 32 hook dobby.
36—DRAPER D, 78", 16 harness.
66—DRAPER E, 42", 2 harness.
90—DRAPER E, 44", 2 harness.
90—DRAPER E, 28", 2 harness.
290—DRAPER K, 40" & 42", 25 harness.
36—C&K 55", 4x1 Automatic.
100—C&K 58", 4x1 Automatic.
36—C&K 82", 4x1 Automatic.
30—C&K 92" 4x4, BOX.
All C&K Looms, 25 harness.
8—MULES, 192 to 480 spdls. ea.
2—PICKERS, RAG, 20x30", BB cylinders.
1—REEL, 82", Beamer, Compressor, etc.
5—SPINNING FRAMES, 240 spdls. ea., 3½" gauge.
2—TWISTERS, 192 spdls. ea., 3" gauge.
1—WARPER, 82", Beamer, Compressor, etc.
4—WINDERS, FOSTER, #25, 60 spdls. ea.

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1—50" 3 roll V. V. Calender
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1—50" V. V. No. 2 Pattern Embossing Calender
1—30' x 72" W & J Tenter Frame complete
1—66" face x 48" dia. two can Cotton Back Filling Machine
1—50" 2 roll ball bearing Quetch
1—50" 3 roll V. V. Quetch
1—50" 3 roll V. V. Print Padder
2—50" Werner Dye Jiggs S. S. lined
2—56" Morrison enclosed gear copper lined Dye Jiggs
2—54" General enclosed gear S. S. lined Dye Jiggs
1—set of 9—20" x 60" Heavy Steel Dry Cans
1—50" V. V. Button Breaker
1—36" motor driven self balancing Hercules Extractor
2—60" motor driven Beamers
3—60" motor driven Tubing & Measuring Machines
50 - 80 - 100 gallon S. S. Steam Jacketed Kettles
2—motor driven 84 spindle Fletcher Duplex Machines
2—No. 50 Universal Coners
1—U. S. 7½ H. P. Vari-drive #2, 3, 4 Reeves Drive
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Motors of various sizes
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COMPLETE CHILDREN'S HOSE PLANT

6—2½", 120 N Banners 48 ga. set up on string work
1—2" 130N Banner as above
2—20 Point So'so Loopers, NEW
1—22 Point Wright Steady Dial Loopers with Sotso Ring.
3—3" Wildman Ribbers, Plain
2—3" Brinton Ribbers Plain
1—A2D Merrow with table
Motors, line shafting, pulleys and hangers. (Lot 15813)

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2—96 Sp. Furbush 3½ gge. mtr. drvn. Twisters.
1—Ruf 16 Sp. Balling machine (new) mtr. drvn.
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1—Butterworth 60" 2R. Padder.

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38—C&K 52" Box looms—2x1—16 Dobby individual motor driven ½ HP motor.
9—C&K Silk & Rayon 4x4 Looms 52" reed space 20 harness dobby—motor driven
14—Draper 80" reed space Automatic loom 28 Battery Cam motion Modified D Individual motor driven ¾ HP motors Mechanical warp stop motions completely equipped
28—Draper 47" reed space Automatic looms Midget feelers and Stafford thread cutters Some dobby, some cam 28 Battery Electric warp stop Individual motor driven ½ HP motors Looms completely equipped in running order
10—Attwood 5B Twisters 2½ in. rings 100 spindle Individual motor driven
36—C&K 72" Automatic Bobbin changer, 2x1 silk & rayon looms, intermediate heads, 20 hook, motor driven, roller bearing, built 1925, 11,000 serial numbers.

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2—Foster Mod. 12, 100 sp. Cone Winders
1—Clark 36" Mixing Picker
1—Schofield Rag Picker, cyl. 18" x 30"
1—J. Hunter 8 string Cloth Washer
6—Halton 2600 hook Jacquards
2—Spencer Automatic Oilers
1—L. & G. 16 sp. Cop Winder from skeins
4—Foster Mod. 12 Coners from skeins
2—Foster Mod. 101 Coners, Motor Driven
Universal No. 50 and 90 Winders—Rebuilt
1—Universal No. 180 Superconer
2—Altemus 6" Drum Spoolers
1—Universal 6C Head
6—C. & K. 82", 4x4 box, Mtr. Dr. Intermediate Looms
2—Altemus Long Chain Beamers
2—Altemus Warpers, Pinless
1—P. & W. 66" Measuring, Rolling & Doubling Machine
1—Windle 72" Fold. & Meas. Machines
1—Gessner 18 roll, 80" D.A. Napper
1—McCreary 10 roll Knit Goods Napper
1—Smith-Drum Mercerizing Range, 24 Arms
1—K. & B. Full Decater, 72"
2—Royal 600 hook Card Cutters
1—L & G Chenille Cutter
1—S.F. Yarn Sizer & Dry Cans
2—P & W 66", Plush Shears
1—P & W Mod. "B" Double Cloth Shear
1—Seargent Stock Dryer
1—Gessner 66" Jumbo Cloth Press
1—E & H Flat Yard Folder, 58"
1—Woonsocket 80", 20 roll D A Napper
1—Fletcher 60" Underneath Motor Driven Extractor
1—Trojan 48" Direct Motor Driven Extractor
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16,000 Lbs. All Wool KNITTING YARN

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12,000 lbs. 2/10 cut, 4,000 lbs. 3/15 cut. O.D. color in orig. 8" cones.
75% foreign, 25% domestic. 56's U. S. standard. Reg. knitting twist.

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3 ENTWISTLE **2 COCKER**

Beam and Leesing Device Type with 54" between Long Drive Roll Beams 54⅛" diameter heads and 12" diameter Bar. Positive Expansion Pantograph Type Comb Boxes. stroke per minute at thread speed of 300 yards per minute. Veeder-Root Yardage Clock. V-Belt Drive Motorized G. E. 2 HP. 855 RPM. 3 Phase 60 Cycle 440 Volt. Stop Motion Controls.

These machines are approximately 6 years old. Excellent condition.

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Model "D" 456 pin DX Magazine Type Creels with Combination Spool and Cone Holders, Stop Motions, Horizontal Pitch 15½", Vertical Pitch 6", Creel Pins .4615" diameter, 19 rows long, 12 rows high. Over-all Length 25'-1", Total Height 7 feet, for 3/30 Cones or for U. S. Bobbin and Shuttle Cone Spools.

2000—Brugger Swifts—for Rayon or Silk
50,000 lbs. original rolls ⅜" signode strapping—.015 and .020
7500—3¼" x 3¼" Stainless Steel steaming shafts
60,000—2⅝" HEAD X 4½" TRAVERSE 5B SPOOLS—FIBERHEAD & BAKELITE
40,000—LBS. FIBERGLAS YARN—225-2-5—ORIGINAL 2 LB. CONES
5,500—NEW WIRE REELS—9" HEAD, 3" BAR., 7¾" TRAVERSE
1,000—FLETCHER AUTOMATIC LET-OFFS—6 PIN, 4 PIN, 3 PIN
25—BAHNSON HUMIDIFIERS—SINGLE PHASE, 2 PH., 3 PHASE
1,200—WHITIN 5B RINGS—3⅛" DIAMETER
3—MOTORIZED EXTRACTORS—60" FLETCHER, 48" TROY, 36" S. & U.
1—TOLEDO 2000 LB. DIAL PLATFORM SCALE—2000 EXTRA LBS. ON BEAM
26—EMULSION TROUGHS & AL. ROLLS FOR #50 UNIVERSAL CONERS
57—C. & K. BLANKET LOOMS—MOTORIZED—85" BET. SWORDS
9—#50—MOTORIZED UNIVERSAL CONERS—BELT & GEAR GAINERS

7 FLETCHER MOTORIZED 1934 MODEL 6" GAUGE SINGLE DECK TWISTERS

4—80 spindle machines and 3—70 spindle with 6⅛" centers, 3½" wide cork covered take-up pulleys, 4½" diameter motor pulleys, 3 HP General Electric motors with starting switches. 220 volts, 60 cycles. Machines in excellent condition. *Excellent Bobbin Equipment Available for These Machines at Low Cost.*

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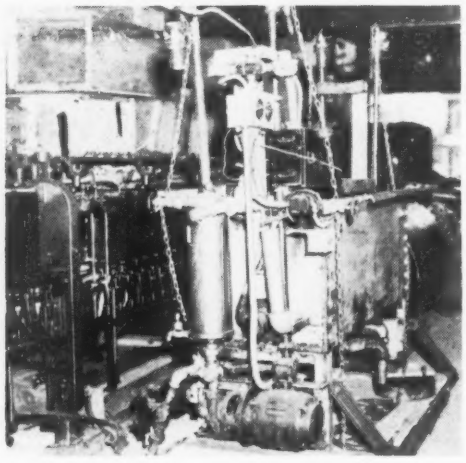
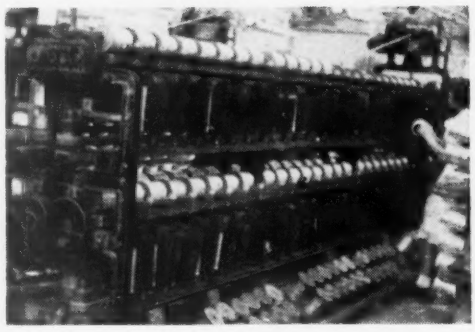


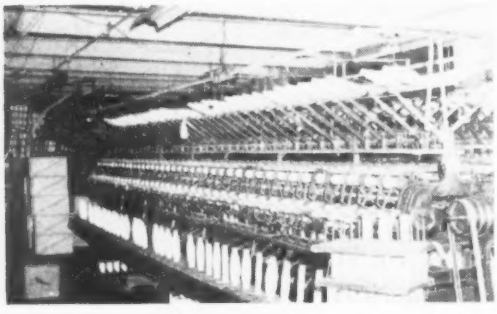
Above: **SKEIN DYE & SOAKING MACHINES**

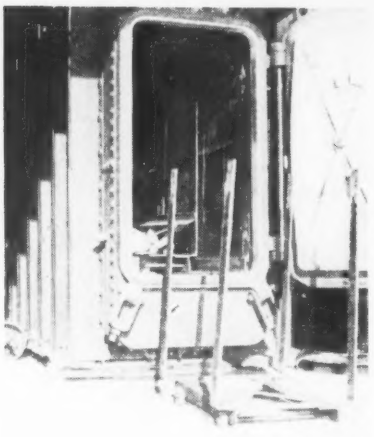
2 Skein dye and soaking machines, complete with electrical immersion heaters, mercroid switches, motorization, timers, pumps, etc.

Right: **DOUBLE DECK TWISTERS**

5 Atwood large package double deck upstroke twisters. Complete with fibre take up shafts and extra new and used replacement parts. 192 spindles each machine. Bakelite separators, 7" spindle spacing. Belt driven.

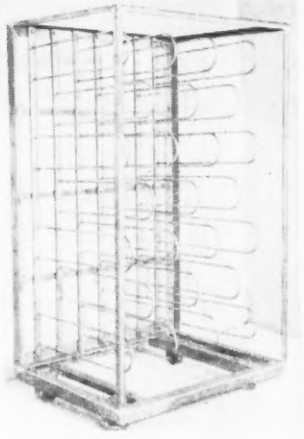






Above: **YARN CONDITIONER**

1 Mertz Yarn conditioner. Excellent for nylon, etc.

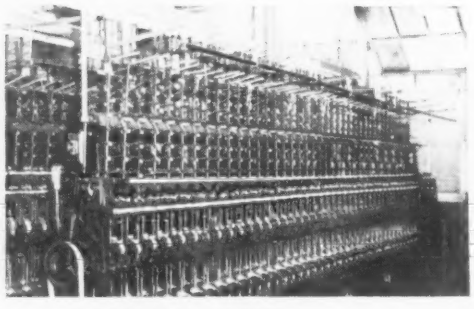


Above: **NYLON CAKE TRUCK**

35 Nylon Cake trucks. Capacity 75 cakes per truck.

Above: **DOUBLE DECK SKEIN WINDERS**

6 Sipp double deck skein winders. 160 spindles each machine. Oilless bearing fingers. Belt driven.

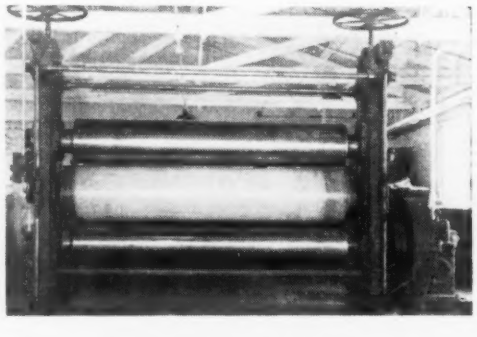


Above: **DOUBLER TWISTERS**

30 Atwood model 5B doubler twisters. Standard and large package types.

Right: **ONE CALENDER MACHINE LIKE NEW**

One three roll Calender 100" on the working face with compound levers and weights for applying pressure. Manufactured by the Textile Finishing Machine Co.



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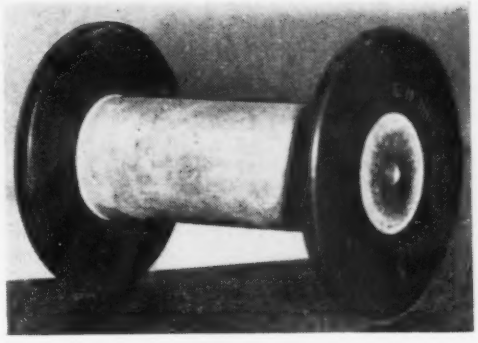
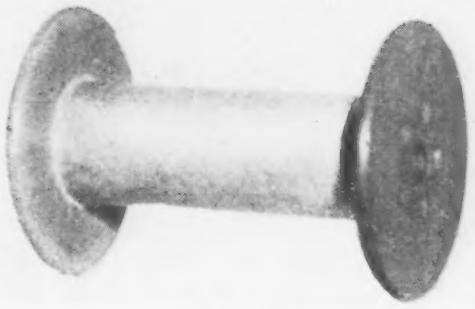


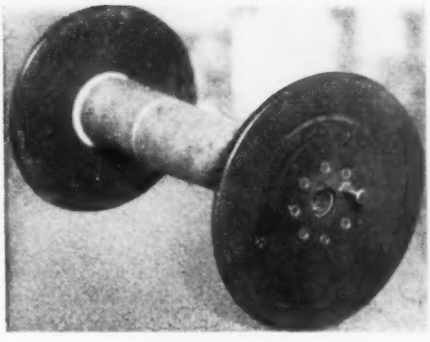
Above: **FIBRE HEAD SPOOLS**

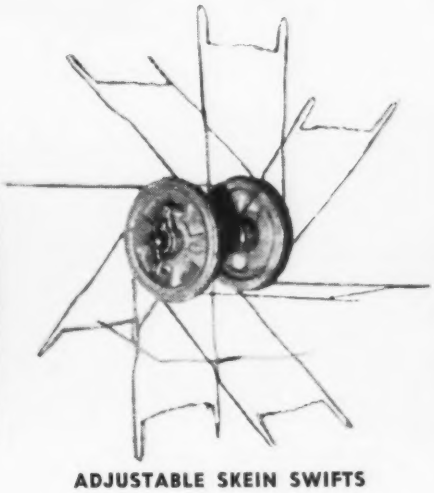
27,500 fibre head spools. Like new. Heavy duty construction. 4⅜" trav., 4" fibre heads; 1¾" hard wood barrels.



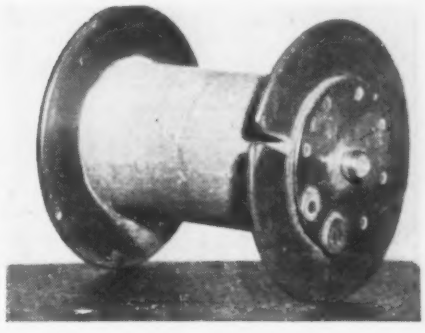
Above: **FIBRE HEAD SPOOLS**

60,000 fibre head spools. 3½" trav., 2¾" fibre heads. 1¼" hard wood barrel. Excellent condition.



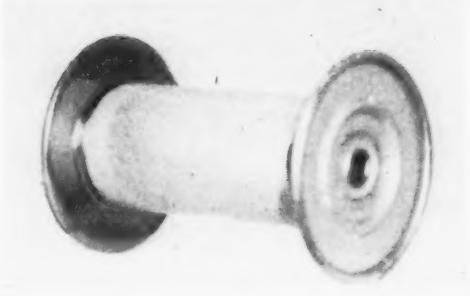


ADJUSTABLE SKEIN SWIFTS



Above: **WARP ROLLS**

2500 fibre head warp rolls. Like new. 9½" trav., 6" fibre heads. 2" hard wood barrels.



Above: **TAKE UP SHAFTS**

5400 take up shafts. Bakelite heads. Hollow tube gudgeons. 4 5/16" trav., 5" bakelite heads 2¾" hard wood barrel. Excellent condition.

Right: **METAL HEAD SPOOLS**

30,000 decorated metal head spools. 4" trav., 3" metal heads. 1 11/16" paper barrels. Good condition.

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4,000 Brugger type adjustable wire swifts. Rayon size and silk size.

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36 Deliveries SACO LOWELL Drawing, 12" Coilers, Metallic Top Rolls, 1927
2 SACO LOWELL Slubbers, 12 x 6, 60 Spindles Each, 1922
2 Saco Lowell Slubbers, 12 x 6, 60 Spindles Each, 1917
2 Saco Lowell Slubbers, 12 x 6, 60 Spindles Each, 1910
1 Foster Winder, Model 30, 100 Spindles, Cone and Tube Attachments, Motor Driven
3 Draper Twisters, 80 Spindles Each, 4½" Rings, 5½" Gauge, 3 ply creels

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1 Butterworth lab. padder 3 roll 3½" x 10"; 1 Atlas Launder Ometer model LDH-EF; 1 rope washer lab. size; 1 jacketed copper starch kettle 1 gal. capacity; 1 Charlotte colloid mill model A; 1 printing machine complete 18" single color; 1 ribbon processing machine 18" with 3 roll quetch, 3 dry cans and 4 roll gas heated calender; 2 flat work ironers 54" and 66" width.

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2—P & W—Up & Down Teasel Gigs Four Contact—36 Slats Water Pan, Cylinder Vibrator Can be fitted with 24 brushes for Wet Brushing

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17 complete Walton Industrial HUMIDIFIERS, complete with 110-120 V 60 Cycle motors, hanging brackets, float valves and overflow. Penn humidistats & Allen Bradley Relays.

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8—Lowell 32 Spindle Rovers 6x3½.
4—Prince Smith 8 Spindle Finishers 12x6.
2—Prince Smith 6 Spindle—5" Rollers 14x9.
2—Prince Smith Gill Boxes (2 Spindles) 2½" Front Rollers, 16 Fallers up—14x9.
1—128 Spindle Prince Smith 4 Ply Twister for 6x3 Bobbin—Ind. Motor Drive.
1—148 Spindle Prince Smith Twister—2¾" Ring Band Drive—Ind. Motor.

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Used 30 foot Van Vlaanderen tentering frame—*good condition*

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2—Twin Pathe Multi-Needle quilting machines, excellent condition.

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10—Vertical Openers, Whitin, Saco-Lowell, H & B, Woonsocket
2—Morton Automatic Distributors
2—#10 Saco-Lowell Condensers
15—Bramwell type Automatic Feeders, 40" to 48", with and without scales
14—Saco-Lowell F-5 Hopper Feeders for 40" Pickers
1—Saco-Lowell #12 Lattice Opener
1—H & B 38" Bale Breaker with condenser, blower, hopper feeder, cleaning truck and 2-beater breaker picker
1—Whitin 2-section Single Process Picker, 1928 Model
14—Kitson 40" Beater Sections, with 16" blade beaters

CARDS AND COMBERS

85—Saco-Lowell 40" Cards, with continuous strippers, 1915 Model
45—Lowell 40" F.T. Cards, 28" doffers, 12" coilers
6—Nasmith Hetherington Combers, 10" coilers
24—Whitin Model D-2 Combers, 12" coilers
10—Whitin Ribbon Lap Machines
10—Whitin Sliver Lap Machines

DRAWING

83—Deliveries Saco-Lowell Drawing, metallic rolls, 1⅜" front, spiral gears, belt driven, 1915 Model
15—Deliveries Whitin Model H Drawing, 12" coilers

ROVING

4—Whitin 12 x 6 Slubbers, 76 and 80 spindles
8—H & B 12 x 6 Slubbers, 64 and 72 spindles
16—Whitin, Saco-Lowell, Lowell and Woonsocket 11 x 5½ Slubbers, 60, 80 and 88 spindles.
14—Saco-Lowell 10 x 5 Slubbers, 84 spindles, equipped with Model M control draft, 1916 Model
2—Woonsocket 9 x 4½ Slubbers, 144 spindles
10—Dobson & Barlow 10 x 5 Intermediates, 80 spindles, shell front rolls
8—Whitin 9 x 4½ Intermediates, 60 and 126 spindles
2—H & B 9 x 4½ Intermediates, 112 spindles, 1927 Model
2—H & B 9 x 4½ Intermediates, 102 spindles, 1917 Model
18—Woonsocket and Saco-Lowell 8 x 4 Speeders, 136 spindles

SPINNING

5—Whitin Model B Tape Drive Spinning Frames, 3" gauge, 2-1/16" rings, 336 spindles each, long draft
14—Whitin Tape Drive Spinning Frames, 3" gauge, 1⅞" rings, 256 spindles
32—Fales & Jenks Tape Drive Spinning Frames, 3¼" gauge, 1⅞" rings, 240 spindles, Roth long draft
5—Whitin Band Drive Spinning Frames, 3" gauge, 1⅝" rings, 252 spindles

TWISTING

23—Whitin Band Drive Twisters, 6" and 4" gauge, 4½" and 2¾" rings, 80 and 120 spindles, 1914 Model
14—Saco-Lowell Tape Drive Twisters, 7" gauge, 5½" ring, 132 spindles, 1944 Model, motor driven
8—Saco-Lowell Tape Drive Twisters, 5½" gauge, 4½" rings, 120 spindles, 1920 Model, motor driven
4—Whitin Tape Drive Twisters, 5½" gauge, 4½" ring, 144 spindles
11—Collins Brothers Tape Drive Twisters, 152 spindles, 4½" gauge, 3½" ring, 1921 Model, motor driven
3—Saco-Lowell Jack Twisters, 3" gauge, 1⅝" ring, 216 spindles each, motor driven

WINDING, WARPING AND SLASHING

3—#50 Universal Winder, for cones or tubes, 6 spindles each, belt driven
7—Foster #12 Winders, semi-hi-speed, 100 spindles each
2—Foster #25 Doublers, multiple wind, motor driven
4—Foster #30 Winders, with paraffin attachments, 100 spindles each, for paper cones, belt driven
1—Abbott Winder, non-automatic, Model 162, Serial #180, 120 spindles, 1935 Model
3—Entwistle 54" High Speed Warpers with Creels for wood cones
3—Barber-Colman High Speed Warpers with Creels
2—Saco-Lowell Slashers, 5' and 7' cylinders, with controls

LOOMS

200—Draper Model "E" Looms, 45½" reed space, Stafford Thread Cutters, motor driven
82—Draper Model "E" Looms, 35" reed space, Dwight Tops, 4 threadle auxiliary shafts, motor driven
104—Draper Model "E" Looms, 41" reed space, roller tops, motor driven
70—Draper Model "E" Looms, 45" reed space, Stafford Thread Cutters, selvage motions, roller tops, motor driven
62—Draper Model "D" Looms, 55" reed space, Stafford Thread Cutters, 20 and 25-harness dobbies, motor driven
40—Draper Modified "D" Looms, 59" reed space, motor driven
71—Draper Modified "D" Looms, 69½" reed space, electric stop motions, Stafford thread cutters, motor driven
120—Draper Model "D" Looms, 71" reed space, Stafford Thread Cutters, motor driven
120—Draper Model "H" Looms, 77" reed space, Stafford Thread Cutters, 8-harness side cams, motor driven
18—Stafford Automatic Looms, 76" reed space, 2 x 1 mixing motion, Draper batteries, electric stop motions, Gem heads, motor driven
36—Stafford Automatic Shuttle Changing Looms, 100" reed space, motor driven

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2—Davis & Furber 4-cylinder 54 x 60 all iron Wool Cards, metallic breasts, hopper feeders, rub condensers
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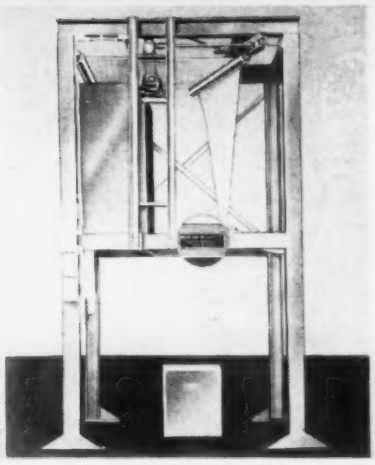

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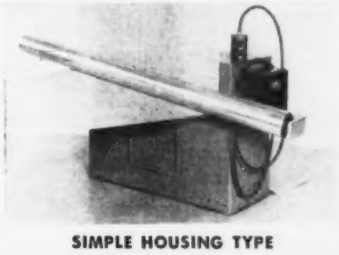

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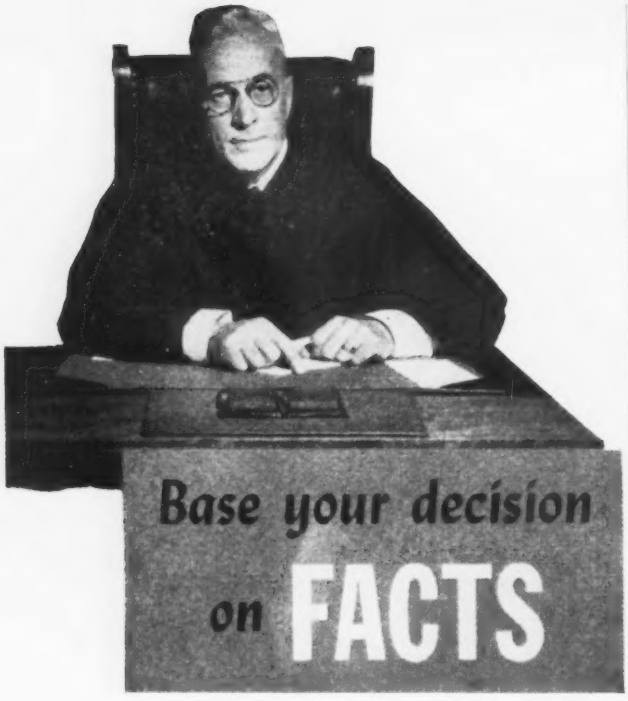

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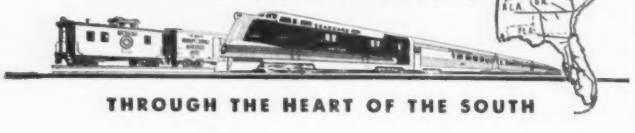

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